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A Lecture

ON THE

DIAGNOSIS OF TUMOURS OF THE SPINAL CORD.

Delivered at the National Hospital for the Paralysed and Epileptic on Oct. 16th, 1906,

BY FREDERICK E. BATTEN, M.A., M.D. CANTAB., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE HOSPITAL.

THE diagnosis of tumours situated within the spinal canal is a matter of no difficulty in the later stages of the disease when all the characteristic symptoms—pain, gradual loss of power, and impairment of sensation—are present. In the earliest stage of the disease it is quite otherwise; pain is, or may be, the only symptom, and it may be impossible to detect even by the most careful examination any impairment in movement or of sensation. Such cases are in their early stages designated as sciatica, lumbago, muscular rheumatism, or "neuritis." Some are regarded as cases of hysteria or neurasthenia. In the later stages when actual weakness has appeared the cases are often said to be "myelitis," or peripheral neuritis, though even at this stage a diagnosis of neurosis is not uncommon.

Tumours of the spinal cord give rise to three definite sets of symptoms: (1) pain; (2) loss of power; and (3) loss of sensation. The relative degrees in which these three symptoms are present depend partly on the situation of the tumour and partly on the nature of the growth. The tumour may be situated outside the theca, within the theca, or within the spinal cord; the tumours in the first two situations commonly give rise to a considerable amount of pain, the latter to but little pain, although numerous exceptions to this rule are met with. The tumour may be single or multiple, innocent or malignant, slowly growing or of rapid growth. The tumours may grow in the cervical, dorsal, lumbar, or sacral regions of the spinal cord, or may be placed so low as to affect only the coccygeal region and the cauda equina.

From consideration of the above facts it will be seen how diverse the symptoms produced by a tumour of the spinal cord are and how different the clinical picture may be, in one case producing spastic paraplegia in the legs, in another a complete flaccid paralysis, in another a flaccid paralysis of an arm and a spastic condition in the legs. Before passing to the consideration of the cases about to be related it will be well to consider generally the three cardinal symptoms.

Pain in the back is a symptom of so great frequency without any sign of organic disease that little importance can be attached to it. Pain, however, which begins gradually, becomes accentuated on movement, on bending down, or on bending the head forward, and radiates down the legs or arms, should receive careful attention. Associated with this pain there may be actual tenderness on pressure on the spine and this may be so marked as to give rise to the possibility of caries of the vertebræ being present. The spine may in some cases be held rigid but in most cases free movement can be obtained. Pain is commonly the earliest symptom and frequently occurs for some considerable time before any other symptom manifests itself. "Girdle" pain may be present and may indicate the level of the lesion, but pain as a symptom does not often lend any special aid in the diagnosis of the position of the lesion; local tenderness may, however, be of localising value.

Loss of power in the legs is a complaint common to many diseases. When, however, on examination it is found that the loss of power is confined to, or at least affects, certain groups of muscles to a far greater extent than others, and when there is also a history of the gradual onset and increase of this weakness the condition is highly suggestive of the gradual increase of pressure on the spinal cord or nerve roots. In some cases the weakness and atrophy of muscles correspond exactly to the distribution of a nerve root or spinal segment; in such a case the seat of the lesion can be accurately determined or at least the highest point to which the lesion extends can be indicated.

Loss of sensation probably furnishes the best localising sign of the lesion. The examination of the patient for the appreciation of the various forms of sensation, tactile, heat and cold, and pain, is important. It is not enough to apply the tests so as to get a negative or positive result, but it is important to find the highest level of relative anæsthesia; the possibility of this depends upon the patient being a good witness.

The localising value of anæsthesia and analgesia in the distribution of a root area is of great importance. Pain, loss of power, and loss of sensation are the three chief symptoms; the condition of the reflexes and sphincters varies according to the situation of the tumour. The electrical reaction of the muscles also depends on the position of the lesion.

Having thus very shortly dealt with the cardinal symptoms let us pass to the consideration of the actual cases, and see in how far they correspond with the typical symptoms above described:—

CASE 1.—Male, aged 55 years; 15 months pain in back, shooting in character; 12 months difficulty in walking. Pain and tenderness especially over the sixth thoracic spine, weakness of legs, relative anæsthesia over legs and trunk to level of eighth thoracic segment. Increased knee-jerks, ankle clonus, extensor responses. Operation; removal of tumour; improvement.

The first case is that of a man aged 55 years. For the last 15 months the patient had had pain in the lower part of the back, and increasing difficulty in walking. He had influenza 18 months ago. In June, 1905, he had shooting pain in the sacral region and round the abdomen; the pain, he said, was easier when sitting up than when lying down, and it was especially severe after any shaking. The pain was throbbing in character, like a pulse beat. In September he had improved and was able to walk fairly well, but had pain when he stooped, or if he jarred the spine. In February, 1906, the pain recurred; he was unable to sit with comfort, and was easier standing up than when lying down. He had at this time slight delay in micturition. He came under observation in July.

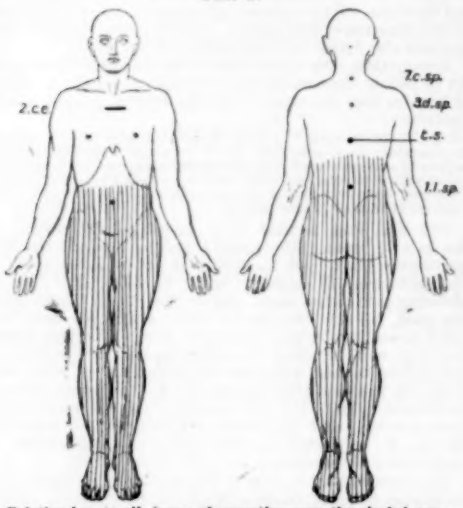
On examination he was a fat, plethoric individual, very emotional at times, starting at the slightest noise. Nothing abnormal could be detected in the cranial nerves. All the muscles of the body were flabby and of poor tone but there was no definite wasting of any muscles or group of muscles. There was no tremor or rigidity. All movements of the head and neck were rather slow and limited; retraction of the head caused pain. Stooping was very limited and was done chiefly from the hip; the spine was moved as little as possible. All movements of the upper extremity were fair and of good precision. The movements of the lower extremity were feeble but all movements were capable of being performed. He walked with a somewhat stiff gait but it was rather the gait of a person who is afraid of pain produced by movement than that due to a spastic condition of the limbs. There was a sense of pain and constriction in the lower abdomen, not definitely localised. The pain was shooting in character and severe about the lower part of the spine. This pain was increased by movement, by coughing, or by laughing. Deep respiration was painful, chiefly on the left side. There was tenderness on pressure over the sixth dorsal spine and there was tenderness in the left lumbar region. There was general tenderness of the whole of the lower dorsal and lumbar region. There was slight relative anæsthesia and analgesia from the eighth rib downward. (See Fig. 1.)

The epigastric abdominal reflex was present, but the abdominal reflex below the eighth dorsal segment where the anæsthesia began was lost. The knee-jerks and ankle-jerks were very brisk; there was ankle clonus and the plantar reflexes gave extensor responses. The sphincters acted normally, but if the patient had to hold urine for a long time there was delay in starting micturition. Three small subcutaneous tumours were present in the wall of the abdomen; these were tender on manipulation. Under treatment his general condition improved, but the symptoms remained the same.

On August 20th Mr. Percy W. G. Sargent removed one of the subcutaneous tumours in the abdomen; this proved to be a lipoma. An incision was made in the middle line behind from the fifth to the tenth dorsal spine. The spine of the seventh dorsal appeared more prominent than the rest. The laminæ of the fifth, sixth, seventh, and eighth vertebræ were removed. No pulsation was seen in the dura mater which appeared unusually thick as if infiltrated with growth. An incision was made into the dura mater and the cord below appeared quite normal. It was

now found possible to strip the growth off from the dura mater; the growth consisted of an oval plaque, about one and a half inches long, lying on the dorsal surface of the dura mater. After this had been removed a small oval tumour of about the size of a small bean lay on the left side at the level of the seventh thoracic lamina. This tumour contained a small bead of pus or broken down growth. The patient after operation had pain and retention of urine for some days but then made a good recovery. He was free

FIG. 1.



Relative loss to all forms of sensation over the shaded area. *t.s.* = tender spot at the level of the sixth dorsal spine.

from pain but still had two months after the operation considerable weakness of the legs with increased reflexes, ankle clonus, and extensor responses.

The growth was examined by Dr. T. Grainger Stewart and the following is his report: "The growth is a typical fibro-myxo-sarcoma. The dura is infiltrated by the growth and shows an increase of fibrous tissue. Though in great part the growth is a fibro sarcoma, at places the tumour cells have undergone a myxomatous degeneration."

The leading feature in this case was *pain*, the loss of power being only of moderate severity and there was a relative amount of anæsthesia. The diagnosis was based on the pain, the gradual increasing loss of power, and the impairment of sensation. The points of localising value were the tenderness over the sixth thoracic spine and the relative anæsthesia to the eighth thoracic segment.

CASE 2.—Girl, aged nine years: ten months pain; difficulty in walking; five months incontinence of urine. On examination, loss of power in legs; spastic; flexed; exaggerated knee-jerks; ankle clonus; extensor responses; loss of sensation; incontinence of urine. Operation; central tumour of spinal cord; no improvement.

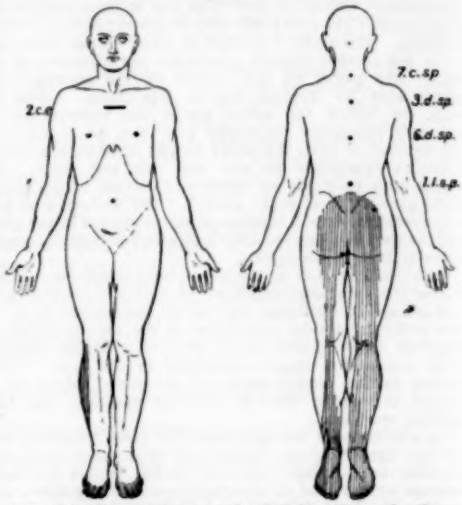
The second case is that of a girl nine years old. In June, 1904, she fell and bruised her back but no further trouble resulted. In October she first began to complain of pain in the back and she walked badly, dragging the toes of the right foot; she had pain in both thighs. In December her gait was very much impaired and from then to March, 1905, she was in the Victoria Hospital for Children, and whilst in the hospital she developed incontinence of urine and fæces.

The child was admitted to the National Hospital in August, 1905, and on examination presented nothing abnormal about the head, neck, or upper extremities. The abdominal muscles acted well. There was but little power of movement of the legs from the thigh downwards. The legs were flexed and rigid and could not be extended either actively or passively; there was slight general but no localised wasting. The muscles retained their mechanical irritability. The knee-jerks were brisk and equal; the ankle-jerks were active, and ankle clonus was present on both sides and the plantar reflex gave an extensor response. There was reflex incontinence of urine and fæces; the tonicity of the sphincter ani was natural. There was loss of tactile (cotton wool) sensation over all the sacral roots on both sides and also over the fifth lumbar on the right side; there was partial analgesia over these areas but the patient was conscious of a pin point. (See Fig. 2.) A bedsore was present over the right buttock. There was no tenderness or deformity of the spine.

Remarks.—The cardinal symptoms of pressure on the spinal cord were present—pain, gradual loss of power, and loss of sensation. The important question was, however, What was the situation and nature of the lesion? First, pain in the thighs would seem to indicate a lesion in the lumbo-sacral region of the cord on both sides, possibly an extensive lesion. Secondly, the loss of power in the legs was out of all proportion to the wasting of muscles—a fact which would indicate that the lesion was situated above the lumbar segment of the cord; on the other hand, the abdominal muscles acted well, and hence the lesion should be below the twelfth thoracic segment. Again, the reflexes of the legs were all exaggerated and the limbs spastic; the presence of the knee-jerks would certainly indicate that the lesion was above the third lumbar segment. Thirdly, anæsthesia was present in the fifth lumbar root on the right side and in all the sacral roots of both sides, a fact pointing to the involvement of those posterior roots or segments of the cord.

From consideration of the above facts it was considered probable that the lesion was at the level of the twelfth thoracic segment. With regard to the nature of the lesion,

FIG. 2.



Loss of tactile sensation over the shaded portions—viz., the first, second, third, fourth, and fifth sacral root areas on both sides, and also over the fifth lumbar root on the right side.

caries of the vertebræ is by far the most common cause of paraplegia in children. The absence of any sign of caries of the vertebræ, however, led to the diagnosis of tumour.

The operation was performed at the highest level indicated by the symptoms and Mr. Horace S. Collier removed the eleventh and twelfth dorsal laminæ. The cord was found to be non-pulsatile. The laminæ of all the vertebræ to the sixth dorsal were then removed and the cord was found to be pulsating; at about the level of the seventh dorsal it appeared to be distended. A small incision was made into the posterior column at this level and a small amount of transparent gelatinous substance forced its way out. The tumour was situated within the spinal cord and was irremoveable. The microscope showed that the tumour was gliomatous in nature.

In this case the sensory symptoms indicated a lesion at the level of the fifth lumbar segment, the motor symptoms a lesion at the level of the twelfth thoracic; the actual seat of the lesion was the seventh thoracic segment. The case is of special value as demonstrating the fact how far the actual

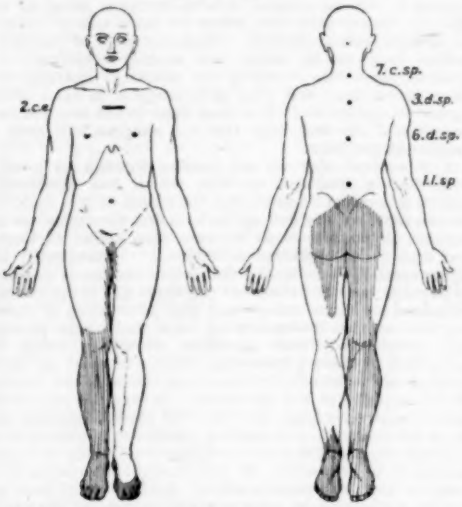
seat of the lesion may be above that indicated by the symptoms when the lesion is centrally situated.

CASE 3.—**Male, aged 30 years.** Four months previously slight injury, followed by difficulty in micturition, severe pain in back, and loss of power in legs; syphilis eight years ago. On examination, partial loss of pain in both legs, loss of sensation of root distribution in both legs, absent knee-jerks, and incontinence of urine. Treatment by mercurial inunction; improvement.

The third case is that of a man aged 30 years. In May, 1906, the patient was kicked in the perineum. The kick was not severe and was unattended by any bruising. Three days later he had difficulty in emptying the bladder and then failed to pass any urine. A catheter was passed and three pints of urine were drawn off. He was then laid up in bed for two weeks. On getting up he noticed that his legs were weak though he was still able to run. Since that time he had steadily got weaker and was now quite unable to walk and could not move the right foot at all. He had severe pain in the lower part of the abdomen and pain was increased by movement. He had had malaria in 1897 and syphilis in 1898.

On examination the patient was, so far as the upper extremities were concerned, a well-made man with excellent muscular development. Nothing could be found abnormal in the head, neck, thorax, or upper extremities. He was unable to walk or stand but could when lying in bed move the left leg in any direction required. All movements were, however, feeble from the hip downwards and it required but little resistance to prevent the movement being performed. The movements of the right leg were feebler than those of the left and he was quite unable to dorsiflex the foot on the right side. There was general wasting of both legs but no localised atrophy of any individual muscle or group of muscles. The abdominal muscles contracted well but there was slight elevation of the umbilicus on attempting to sit up, indicating weakness of the lower part of the rectus abdominis. The knee-jerks and ankle-jerks were absent on both sides. The plantar reflex was absent on the right and gave a flexor response on the left. The abdominal reflexes were present but difficult to obtain. There were dribbling incontinence of urine and incontinence of fæces after aperients. There was relative anæsthesia over the area supplied by the fourth and fifth lumbar and first, second, third, fourth, and fifth sacral segments of the cord on the right side and over the first, second, third, fourth, and fifth sacral segments on the left side. (See Fig. 3.)

FIG. 3.



Relative loss of all forms of sensation over shaded parts—viz., over the first, second, third, fourth, and fifth sacral root areas on both sides, and also over the fourth and fifth lumbar areas on the right side.

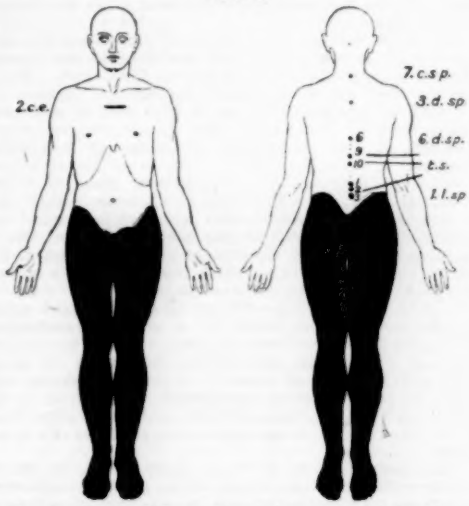
The position of the lesion was in this case probably at the level of the second and third lumbar segments and was syphilitic in nature. Mercurial treatment was adopted and the patient rapidly improved and is now able to walk relatively well.

CASE 4.—**Girl, aged 15 years**; nine months pain; three months loss of power; incontinence of urine; alteration in sensation. On examination flaccid paralysis of both legs, wasting of muscles, and loss of sensation to twelfth dorsal segment. Operation; removal of extra-thecal tumour.

The fourth case is that of a girl, 15 years of age. In November, 1905, the patient first began to complain of pain on the left side going down to the left hip. From this she recovered, but in February, 1906, she again had pain over the left side and the left groin. She was at this time generally out of health, but had no actual loss of power. On June 4th she fell from a swing but did not seem to injure herself. On the 12th she went to a swimming bath and on that evening had severe pain in the back and could not sleep. On July 9th she noticed dragging of the legs and she could not stand on tiptoe. On the 12th she woke up with severe pain in the back and inability to move her legs and on this day she passed urine in bed without being conscious of the act. The numbness of the legs was first noticed on this day.

On admission to the hospital on Sept. 24th she had the appearance of a rather overgrown girl for her age. Her muscular development was poor. Nothing abnormal could be detected above the umbilicus. There was complete flaccid paralysis of both legs with general wasting of muscles. The upper three-quarters of the rectus abdominis muscle acted well and the umbilicus was slightly raised on attempting to sit up; the lower quarter was weak. There were complete anæsthesia and analgesia to the level of the twelfth thoracic segment on both sides (see Fig. 4). There

FIG. 4.



Complete loss of all forms of sensation over the blackened areas—i.e., to the twelfth dorsal segment. *t s* = tender spots at the level of the ninth and tenth dorsal and first, second, and third lumbar spines.

was tenderness on pressure over the ninth to tenth thoracic spines and also over the second and third lumbar. All the deep reflexes were abolished in the legs and the plantar reflexes were absent. The upper abdominal reflexes were obtained but the lower were absent. An electrical examination showed complete loss of electrical excitability to faradism in all muscles of the legs and altered reaction to galvanism. There was complete incontinence of urine and fæces.

Remarks.—The complete loss of sensation below the level of the twelfth dorsal segment and the complete loss of power below the same level with loss of sphincter control and loss of faradic excitability of the muscles would point to either a complete physiological or anatomical transverse lesion at the level of the twelfth dorsal segment or to the involvement of *all the roots* of the cauda equina below that level. It is impossible in the later stages of the disease to distinguish between these lesions, although in the earlier stages when

the plantar reflex is still present the occurrence of an extensor response would point to a transverse lesion rather than to a lesion affecting the roots.

Mr. Sargent made an incision over the eighth dorsal spine and removed the laminæ of the seventh, eighth, ninth, and tenth vertebræ and exposed a tumour lying outside the theca and extending along the twelfth left posterior root. The tumour was dissected off and removed. Good pulsation returned after removal of the tumour.

Microscopical examination of the tumour showed it to be a sarcoma, composed of large round cells with but little connective tissue between them. In many places the growth was formed of dense connective tissue which surrounded and pressed upon clumps of the tumour cells which in places show degenerative changes.

These four cases illustrate well the characteristic symptoms of spinal tumour—gradual and increasing pains, gradual and increasing loss of power, and impairment of sensation. In the first two cases there was a spastic paralysis with increased knee-jerks and extensor response; in the last two there was flaccid paralysis with loss of deep reflexes. The difference in the symptoms depending on the position of the lesion. The sensory symptoms gave the most accurate localisation in three cases, but was at fault in the case in which the tumour was situated within the spinal cord.

The differential diagnosis of tumours situated within the spinal cord from those situated outside is one of considerable difficulty. It was at one time thought that the loss of perception of heat and cold and the retention of tactile sensation was indicative of a lesion within the spinal cord. Although none of the cases in the present series prove this point it is certain that no great reliance can be placed on this symptom and extra-medullary lesions may in some cases give rise to dissociated anæsthesiæ or to the Brown-Séquard phenomenon.

In Case 4 it will be noticed that the paralysis manifested itself rather rapidly and, according to the history, became complete in from three to four days. It is possible that this is accounted for by the pressure on the cord becoming so great as to give rise to a physiological complete transverse lesion, and it will be noticed that at this time all sense of the action of micturition was lost.

The importance of early diagnosis in cases of spinal tumour is great, since from delay irreparable damage may be done to the spinal cord by the prolonged pressure of the tumour. So long as the spastic condition remains this is evidence of conduction through the cord at the seat of the lesion, but if a flaccid paralysis supervenes on a spastic condition it indicates that a physiologically complete transverse lesion of the cord has taken place and unless rapidly relieved will result in a complete anatomical transverse lesion from which there can be no hope of recovery. As in the cranium the occurrence of headache with the gradual onset of localised weakness suggests the presence of an intracranial neoplasm, so in the spinal cord the occurrence of pain and the gradual onset of weakness should always suggest the possibility of a spinal growth.

Treatment.—In cases in which there is definite specific infection mercurial inunction should be pushed to salivation; sometimes no improvement will be manifest till salivation has begun. Even in these cases if a flaccid paralysis should supervene on a spastic condition no time should be lost in opening the spinal canal and relieving pressure on the cord. In other cases iodide of potassium should be given in large doses. In the majority of cases operation is indicated and should be performed at the earliest moment compatible with accurate diagnosis. The seat of operation should be at the highest level indicated by any symptom.

For permission to refer to one of the above cases I am indebted to Dr. Thomas Buzzard and to another to Dr. J. A. Ormerod. For the careful notes I am indebted to my house physician, Dr. George Hall.

BORIC ACID IN SAUSAGES.—At Falmouth, on Jan. 7th, a butcher was summoned for selling "German sausage" containing 45 grains of boric acid per pound. The magistrates considered that the defendant had used the preservative in ignorance and the case was dismissed on his paying the costs of the court.

ABSTRACT OF

A Presidential Address

ON

SCEPTICISM IN THERAPEUTICS.

Recently delivered before the Leeds and West Riding Medico-Chirurgical Society.

BY AUGUSTUS H. BAMPTON, M.D., M.CH. R.U.I., M.O.H.

GENTLEMEN,—Scepticism is in the air. Even in this society, if any daring member has introduced a subject bearing on medical treatment it has been with an apologetic air and humble mien, well knowing that if his remarks had any reference to the utility of drugs in the treatment of disease they would be subjected to good-humoured banter and received by those sitting in the seat of the scornful with amused incredulity—scepticism not entirely confined to the surgeons whose mental environment, training, and temperament would discount much of it, but the chief critics have been those of the medical household. The general practitioner, in the meanwhile, has said little, pondered deeply, and prescribed more or less on the even tenour of his way. Practising both branches of the profession, as far as he knows how, he may claim to be like "Iolanthe," mortal as far as the waist and immortal below. Which half of him is medical and which surgical I leave you to decide.

If I believed that we were unable to modify, arrest, or favourably influence the progress of disease by therapeutic means, then our occupation as physician has gone, and I for one would not accept the position of a kind of superior nurse, with a watching brief, which in the past eminent men in our profession (who knew too much pathology and too little pharmacology) have assigned to us. I know of no more unsatisfactory position either to client or advocate than that of holding a watching brief. And if we are only nurses, let us be honest and say so, and not accept fees for healing and wonder-working which in the nature of things we are unable to accomplish. I do not think that at any time we were justified in assuming an attitude of helplessness or masterly inactivity. And although our treatment then, as now in part, may be stigmatised *empirical*, it was none the less founded upon careful clinical experience and we showed shrewd common sense in not being off with the old love before we were sure of the new one of experimental research. There are other of our habits besides drug taking which are equally empirical; for instance, our habits of eating and drinking, clothing, and giving in marriage, and these will continue in spite of the stigma of empiricism. The work done in the near past and present fills one with hope that our weapons will soon be weapons of precision.

It is evident that we are passing through as great a revolution in medicine as that which has transformed surgery in the last 25 years, and the reason of it is that, like the surgeons, we are getting back to first principles, we are realising in practice what we have long known in theory, that man is an organised collection of differentiated and highly specialised cells, and that cellular action is governed by physical laws and chemical processes and are profoundly influenced by slight causes, and that nine-tenths of disease are due to the interaction of cells and their products and germs and their products, chemistry being the interpreter of these phenomena. Barely 50 years ago belief in drugs and energetic treatment was the faith and practice of the majority of the profession. It was the rise of the pathological school and the study of morbid anatomy that shook the faith of the succeeding generation of practitioners, viewing only the last stages of disease and seeing structural alteration in the *mass*. It was thought unreasonable to imagine that any pharmaceutical product could have any influence whatever on such profound structural changes in vital organs. It was argued that the cause of many diseases being unknown, therefore the remedies were irrational. And it was noted that many patients got well from acute disease without any treatment whatever. Much more importance was attached to pathology then to therapeutics at the examinations and a pronounced Agnostic frequently filled the chair of pharmacology. Morbid anatomy for the moment

eclipsed clinical experience. Meanwhile it was cold comfort to the patient to feel that he was possibly viewed by his medical attendant as an interesting pathological specimen and that the macroscopical and microscopical appearance of his erring viscera was accurately known.

At this time the great rise of surgery took place. Surgery having found salvation in bacteriological cleanliness, such cleanliness being surgical godliness, surgeons mounted from strength to strength, and having amputated everything and anchored the rest now sigh only for new viscera to conquer. Small wonder that the surgeon who could offer active assistance was often preferred to the practitioner of passive resistance. But there is no progression without retrogression, and this stage in the evolution of medical science was the natural order of development and inevitable. As structure precedes function and anatomy precedes physiology, so morbid anatomy of the organ and then of the cell preceded chemical pathology and pharmacology of the cell. We are now in the chemical age and numerous workers are constantly adding to our knowledge; so much so that it is difficult for anyone to collect the facts, much more to digest them or apply them in practice. And yet, as I apprehend it, that is the particular duty of the general practitioner—viz., to apply new facts to old diseases.

The study of medicine is the study of life, and its foundation stone is the unit of life, the living cell. If the mystery of life is to be solved it will be by the experimental examination of the simplest form of life. The discovery that every tissue, every cell, has its own special ferment, is of far-reaching importance in explaining much that was mysterious in physiology and pathology and accentuates again the importance of chemistry in explaining vital phenomena. When medicine and physiology are written anew, in leaded type, we shall be told the relations that one ferment bears to another. Pawlow has already done this for us as regards the digestive ferments. And it is by virtue of this special ferment that each cell is able to select out of the food-stuffs such material as it can transform into energy. The corollary of this is true, that an organ or tissue may fail to perform its function from lack of special fuel to make the ferment. It has been pointed out that during the involution or atrophy of an organ the symptoms which arise may be due to the absorption of the tissue and its passing into the general circulation; absorption of kidney tissue, for example, produces increased arterial tension; liver substance lowers it. Recently, we have all seen the involution of an enlarged thyroid give rise to all the signs attributable to large doses of thyroid extract. It occurred to me that it was strange that during the involution of the gravid uterus that symptom did not arise; if this theory be correct, may it be that the product of the uterine tissue is the natural excitant of the mammary gland function? The degree of disturbance that arises may vary according to the previous activity of the organ or the rapid excretion or neutralisation of its internal secretion.

Recent researches, I think, emphasise the importance of little things. That is well shown in the effect of abstracting lime salts from the blood, in producing hæmorrhage by injudicious diet. We might have foreseen this by noting the effect of improper diet in producing scurvy. 15 grains of lime lactate are recommended as an antidote to morning headache after too much alcohol, alcohol producing slight œdema of tissues. Another point in practice is the relation of NaCl to exudations and its effect in modifiying remedies. That such simple substances either withheld or abstracted from the blood can produce such far-reaching effects makes one hopeful of controlling the beginning of disease as our knowledge increases. It is new to me that acetonuria is derived, not from carbohydrates, but from the metabolism of fat, thus giving sanction to clinical experience that in such diabetic conditions it is not wise to withhold altogether carbohydrates from the diet. Professor J. B. Leathes says: "In practically all forms of acetonuria increasing the amount of fat in the food intensifies the condition. The disorder in acetonuria seems to consist in the failure of the organism to carry out the final steps in the progressive oxidation of the fatty acids, and brought about by overtaxing its powers." From the same authority we learn "that fatty degeneration is not a degradation conversion of the proteids of the cells into fat, but that in fatty heart and liver the fat has been transported from the connective tissues and dumped down, so to speak, for the purpose of supplying source of energy to the organ, from where it was only storage fat, to where it would be used up if the catabolic activity of the cells were normal, but the cataboli changes which liberate energy by the demolition of fatty acids fail, and the imported fat accumulates, because it cannot be used up. Ph or As, or diphtheria toxin may act as negative catalysing agents, and retard the rate at which a reaction normal to the cells take place, and so by attacking a vital function, poison the cells by robbing them of their power of using what in normal conditions would be their principal source of energy." Again, "the catabolism of proteids takes place within the cells of the various tissues by means of enzymes native to the cell. This process has been termed *autolysis*. And these enzymes are the agents in the resolution of pneumonic exudation. The changes in the liver in Ph poisoning are due to autolytic activity getting out of control." This stimulating effect of phosphorus on autolysis gives support to the old therapeutic practice of giving phosphorus in delayed resolution in pneumonia. "Autolysis may account for the liquefaction of pus, the softening and breaking-down of new growths, and the absorption of infarcts and thrombosed parts. The absorption of gummata by means of KI has been attributed to the influence of the drug on autolysis."

As another instance of the importance of bio-chemistry to medicine I mention the interesting suggestion of Professor B. Moore of Liverpool as to the possible causal relation of auto-catalysis and infection. "In the course of any chemical reaction the products formed may themselves in certain cases act as catalysts and alter the velocity of the reaction. Such a process has been termed *auto-catalysis*. When the substance formed in the reaction acts as a positive catalyst the course of the reaction assumes an accelerando type. The course of such auto-catalytic reactions bears a close analogy to the phenomena of fever. Examples of such auto-catalytic reactions are seen in the tendency of many explosive substances to spontaneous combustion or explosion. Thus if gun-cotton be not most carefully washed free from oxides of nitrogen these products, present in minute quantity at first, may set up a slow and at first inappreciable reaction which, slumbering at first, gradually increases in velocity, and finally fires off the gun-cotton. Such a process of auto-catalysis induced by a trace of enzyme may be the means of infection and of the reproduction of the virus in many of those infectious diseases, such as the acute exanthemata, in which no germ has been as yet shown to have causal connexion. The incubation period would be that required for the production of the auto-catalyst in sufficient quantity to cause a general reaction with the tissue cells. The auto-catalyst would act as the toxin of the disease; the tissue cells would react to it and produce the antitoxin until the toxin was neutralised or rendered inert. Variations in immunity would, as in parasitic infection, depend upon the individual variations in the blood as a suitable medium for such a reaction, upon the presence or absence of an anti-body at the outset capable of neutralising the trace of auto-catalysis bearing the infection, and upon the reactive power of the tissue cells to the auto-catalyst or toxin." The chemical theory of disease will explain many of the so-called functional diseases—diseases where no structural alteration is manifest, a ferment gone wrong, or an internal secretion in excess or absent, disturbing the harmonious action of the part. We hear much less than we did of idiopathic inflammations, the idiopathic itis that is most popular amongst the "unco guid" being idiopathic urethritis and vaginitis. But this is laymen's pathology.

Our knowledge of the causes of sterility in apparently robust and vigorous couples is very unsatisfactory. I regret the current fashion of declaring in all these cases that stenosis of the cervical canal exists and that dilatation and curetting are necessary. Conception rarely follows the operation. The cause of sterility is probably much more subtle and delicate. The spermatozoon is very sensitive to both chemical and galvanic stimuli. If a galvanic current is passed through a tube containing spermatozoa the latter place themselves with their heads towards the anode and their tails to the cathode, reverse the current and they reverse their position (galvanotaxis). They have the property also of always heading up against a flowing stream (barotaxis). The spermatozoon seeks the ovum, and when the conditions are favourable is led in the right path by the chemotactic action which the metabolic products of the ovum exert upon the freely-moving sperm cell. Many chemical substances induce only positive chemotaxis, others only negative. It is evident much may happen before the spermatozoon reaches the ovum. That sterility is not always

due to gross mechanical causes is often shown by subsequent proceedings that lead to the divorce court, which proceedings may be explained, if not justified, from the biological point of view.

Have we not been unduly cautious and prejudiced in general practice against the use of tuberculin? Its use has certainly not been generally adopted in this country, although we quickly grasped the utility of using antitoxin in diphtheria. It has been stated that gouty people are never tuberculous. It would be interesting to test the truth of this statement by means of the opsonin test. As medical men all our practice, theory and treatment, is based upon the view that we have to deal with machines out of order; this function has to be put right or that part lopped off. Transcendental medicine or surgery has not yet been written. If vital phenomena are supernatural then our remedies should be supernatural. And where are we to find them? Treatment by suggestion, endeavouring to make patients believe and act upon a delusion, is perilously like playing at insanity.

The life of the individual is the sum total of the activities of his constituent cells. A man is as old as his cells. The cell is the element of living substance. All living substance exists in cells and all the functions of living substance originate in the elementary vital phenomena of the cells. Here we are on sure ground. These are the first principles of medicine. As a working hypothesis the mechanical view of life is the only practical one for medical men. The question of the unity of nature is not called in question.

Hear what a practical bio-chemist says bearing on the point speaking of metabolism. Professor Leathes says: "It implies and gently insists on the idea that all the phenomena of life are at bottom chemical reactions, when a muscle twitches no less than when a gland secretes. It is not too much to say that when we are moved to tears or laughter it is chemical reactions that are the underlying causes to which ultimate analysis must lead us." Who can doubt it who has seen the effects of drugs or other chemical bodies on the moral and intellectual faculties or other manifestations of the nervous system. In myxœdema, cretinism, alcoholism, for instance, is it not fantastical to imagine that a material drug can effect a spiritual essence? Poets make much of the paragon perfection of man and argue therefrom his supernatural attributes, but we know from our daily work that man at the present stage of evolution is frequently fearfully and wonderfully badly made—that many specimens are never out of the repair shop. It is probable that in this society there is not a member who has a perfect pair of eyes or whose nasal septum is not out of the perpendicular. In the highest and most important function for the perpetuation of the race (that of reproduction) the complaint that is continually poured into our ears is that of inefficiency.

The question of diet bulks largely in any scheme of treatment. Perhaps the burning question of the hour is what amount of proteid is necessary and advisable to maintain a high standard of health? The question cannot be answered with any certainty at present but we know by direct experiment under different conditions, as well as by the habits of some hardy and intellectual races, that great physical and intellectual activity is compatible with much less than the conventional dietary of 100 grammes or more of proteid, and that particularly in persons whose ancestors have for generations taxed to exhaustion point the cells concerned in nitrogenous metabolism a great part of this proteid may be advantageously replaced by carbohydrates or other non-nitrogenous foodstuffs, the more especially because much of the proteid never reaches the tissues as proteid. He is a wise man who knows his own metabolic limitations and does not attempt to emulate men with primitive digestions. With new drugs and new remedies we are apt to forget the debt we owe our medical forefathers who by sheer therapeutic intuition discovered and handed down to us such valuable remedies as opium, cinchona bark, mercury, nux vomica, vaccine, and coca leaves, which the Mexicans used for generations as a local anæsthetic before the alkaloid was discovered. Coal tar was the forerunner of, and used for the same purposes as, carbolic acid. Carbolic acid gave birth to salicylic acid. The pine-forest cure suggested eucalyptus oil. I have to confess to a sneaking affection for the old-fashioned, much-ridiculed blunderbuss prescription. Each tissue knows its own requirements. It may be that I was prejudiced in the favour of these prescriptions in my early apprenticeship days. But, after all, complexity is a higher stage of evolution than simplicity. And nature's remedies are all complex. Take, for instance, the natural mineral waters, or opium or cinchona. They are all blunderbuss prescriptions. Even the simplest fare, such as bread-and-milk, contains over 20 ingredients and yet each individual ingredient is unerringly conducted to its affinitive tissue.

We may hope that as pharmacology advances that mechanical or empirical prescribing will become less and less frequent. At present we know that drugs produce their effects either by chemical combination or by their physical properties interfering with oxidation processes, as sand puts out a fire, and their ability to penetrate a cell may depend upon the size of the molecules of which they are composed. Instances of chemical combination are shown in the exhibition of alkalies in diabetic coma and sulphonal poisoning, in the action of sulphate of soda in carbolic acid poisoning, and of sodium hyposulphite in combining with prussic acid to form the non-poisonous sulphocyanide. The most powerful narcotic substances are those which combine a very slight solubility in water with a very high solubility in ether, olive oil, or brain lipoid. The cerebral cells are more sensitive to alterations in their composition than other cells and they contain a much larger percentage of "lipoid matter" or fat, so that these drugs tend to accumulate in them. Here we have an instance of the physical action of remedies. To this class belong the trional group. As a practical point I may remind you that the effects produced by adrenalin upon any tissue are such as follows excitation of the sympathetic nerve which supplies the tissue. Consequently, in cases of hæmorrhage from the lungs it is contra-indicated, because the muscles of the pulmonary blood-vessels are not supplied with constrictor fibres.

And now, Gentlemen, in conclusion, I fear that the limits of your patience must be reached. I am only too conscious of having rushed you from China to Peru, and only hope that on the voyage you may have annexed here and there some trifling *bric-a-brac* to furnish your study. The late Dr. Abercrombie sums up the lesson that I would take to myself and offer to you this evening. He says: "In regard to the effect of medicines in particular, there are two opposite errors to be equally avoided—namely, an implicit confidence in the power of particular remedies in every case, and a total scepticism in regard to the resources of medicine. Both these extremes are equally unworthy of persons of calm philosophical observation, and they who advance carefully in the middle course, not misled by the temptation to hasty conclusion, and cautioned, but not discouraged, by the danger of concluding falsely, are most likely to contribute something towards diminishing the uncertainty of medicine."

Authorities cited.—Problems in Animal Metabolism (Leathes), Recent Advances in Bio-Chemistry and Physiology (Leonard Hill), General Physiology (Verworn), Pharmacology (Dixon), and Essays (Chittenden).

ON OPSONINS AND TREATMENT BY BACTERIAL VACCINES.[1]

BY J. L. BUNCH, M.D., D.SC. LOND., M.R.C.P. LOND.,
LATE RESEARCH SCHOLAR OF THE BRITISH MEDICAL ASSOCIATION.

THE advances of science, like those of nature, are slow, and the marvellous discoveries which are introduced to the public in their completed form and then appear, like Pallas Athene, to have leapt fully developed from the head of their creator, can on closer examination be traced through all the stages of their gradual development. Although, to the romantic imagination, the falling of an apple, the swinging of a church lamp, and the flowing of water from a bath revealed to Newton, to Galileo, and to Archimedes respectively the secrets of nature, nevertheless, truth compels us to recognise that these secrets were only unravelled by ceaseless striving and strenuous work, and that only by similar means can future advances in the field of research be accomplished. Thus we can trace back to far distant times the first attempts at preventive inoculation. It was early recognised that certain diseases occur only once in the life of the individual and he is in future protected against attacks of the same disease. From this it was a short step to the artificial production of such diseases and it has been stated that the practice of artificially inoculating small-pox

[1] A paper read before the Medical Society of University College, London, on Nov. 14th, 1906.

was known and practised thousands of years ago by the Indians and Chinese, and was quite a common practice in the Middle Ages. As time went on there was evolved the method of inoculation of cow-pox to protect against small-pox and, more recently, the use of antitoxic sera and various forms of vaccines to neutralise the effects of diseases which had already invaded the organism. The cure by such means of an already established disease is, of course, of the greatest importance to the community and various explanations have been given of the destruction of bacteria within the organism.

According to some, it depends on some action of the serum, according to others on the activity of the phagocytes which ingest and destroy the bacteria, while others hold that both serum and phagocytes are necessary. Behring showed that anthrax bacilli grow well on the blood serum of animals which are susceptible to anthrax inoculation but cannot be got to grow on the serum of white rats which have been rendered immune to anthrax. He also showed that while one particular serum is fatal to certain varieties of micro-organisms it is powerless to inhibit the growth of certain other organisms and that a definite amount of serum is only capable of dealing with a certain definite number of bacteria, so that if bacteria in excess of this number are introduced they grow and multiply actively. In other words, the immunity thus conferred depends upon the ratio between the number of micro-organisms and the quantity of the substance inimical to their growth contained in the fluid.

It has been shown that the destruction of the typhoid and cholera bacillus can be brought about by lysins which are present in the corresponding immune sera after artificial inoculation (Pfeiffer) and lysins have been assumed to exist in other diseases also. In the case of diphtheria and tetanus antitoxins are employed clinically which neutralise the respective toxins. Anti-bacterial substances have by some been held to exist within the phagocytes in the form of ferments and in certain circumstances to be secreted by them. According to Metschnikoff the destruction of bacteria is carried out by the phagocytes alone which have in the case of natural immunity been pictured as carrying on a war with the microbes that are attempting to invade the organism. Relying on the experiments of Bordet and Gengou he ascribed the whole protective influence to the phagocytes alone, but it has since been conclusively shown that these, washed absolutely free from serum and the substances contained in it, have of themselves no phagocytic action on bacteria.

The theory, which is a combination of Metschnikoff's phagocyte theory and Behring's humoral theory, receives strong confirmation from some experiments of Buchner. By suitable chemical stimulation he was able to cause the secretion into the pleural cavity of rabbits and dogs of leucocyte-containing exudations which possessed bactericidal powers stronger even than those of the blood or serum of the same animal. Under these conditions, however, phagocytosis could be observed to be proceeding actively and the question immediately arose as to how far the bactericidal qualities of the fluid depended upon phagocytosis and how far upon the contained alexins or anti-bodies. The question seemed to be settled by freezing the fluid and by this means killing the leucocytes but not injuring the alexins, and then again testing its bactericidal powers. These were found to be in no way diminished, and, inasmuch as the leucocytes had been killed, the capacity of the fluid to destroy bacteria must necessarily depend upon the contained anti-bodies. But even if phagocytosis is merely a secondary phenomenon and the destruction of bacteria is brought about by poisonous substances circulating in the fluids of the body, there is a considerable amount of evidence which goes to show that these poisons are secreted by the leucocytes. The influx, therefore, of these white corpuscles to an infected area means an increased secretion of substances poisonous to the invading micro-organism and increased powers of resisting disease. One substance, opsonin or immune body, is, together with the complement, present in every normal serum and accounts for its bacteriolytic and hæmolytic action. Numberless observers have shown the presence of such a substance, which becomes attached to the bacteria in such a way as to render them capable of absorption and destruction by the phagocytes, but whether this action is entirely due to immune body or whether free complement also takes part in the preparation of the bacteria is not so certain. It would, at any rate, increase the strength of action of the immune body, even if it were not absolutely necessary. I have drawn no distinction between opsonin and immune body, not because they are identical, but because up to the present it has not been shown that they are different. It has been asserted by Wright and Douglas that opsonins are thermo-labile—i.e., destroyed by heat—and therefore differ essentially from immune body. They state that if the serum be heated to 60° C. for a quarter of an hour and a tube containing the usual proportions of washed corpuscles, bacterial emulsion, and heated serum be incubated for 15 minutes no bacteria will have been ingested by the phagocytes because the opsonin necessary for their preparation has been destroyed by heat. If this were true it would make it probable that the opsonin is either of the nature of complement or receptor of a fourth order. Dean has, however, in an admirable piece of work, shown that when fresh serum, either normal or immune, is heated to 60° C. for various periods there is a great fall, as estimated by Wright and Douglas's method, in the amount of activating substance in the first two minutes and after that the curves run almost parallel to the base line. In the case of normal serum the fall is so great that the curve may reach the base line. The fall in the curve does not, however, indicate complete destruction of the substance, as was stated by Bulloch and Atkin, but merely indicates that the substance has reached a concentration below that demonstrable by Wright and Douglas's method. Horse serum after heating to 60° C. for as much as four hours still contains a considerable amount of the substance, so that, as judged by the effect of heat, there is no reason to distinguish between the opsonin of normal serum and the active substance of immune serum.

Whatever the exact nature of opsonins, they undoubtedly act on the bacteria in such a way as to enable them to be taken up by the phagocytes. This is proved by the following experiment of Wright and Douglas. Two tubes are incubated for a quarter of an hour at 37° C., the one containing three volumes of normal serum, plus one volume of staphylococcus emulsion (previously heated to 75° C. and cooled), the other containing three volumes of serum which has been heated to 60° C., plus one volume of staphylococcus emulsion (previously heated to 75° C. and cooled). On removal from the incubator the first tube (containing normal serum) is heated to 60° C. and cooled. The contents of each tube are then added to three volumes of white blood corpuscles and the number of staphylococci taken up per phagocyte counted. It is found that the number of staphylococci taken up in the second case is only one-seventh as compared to that taken up in the first case; in other words, the opsonin acts directly on the bacterium. It seems that opsonins are specific and in a considerable number of infections specific opsonins have been demonstrated. Variations in the amount of opsonins in the blood are not necessarily associated with variations in the number of leucocytes.

An increase of the opsonic content of the blood serum can be brought about by the injection into the organism of vaccines. Of these the best known is the "old" tuberculin of Koch, which he employed as an injection in the treatment of tuberculous patients when first he introduced the tuberculin method some 15 years ago. The preparation is a clear brownish fluid, somewhat viscid from the presence of glycerine, and is diluted down before use according to the required dose, bearing in mind that the dilutions must be freshly prepared. It is obtained by growing the tubercle bacilli in glycerine-veal broth in the presence of a sufficiency of oxygen for from 6 to 12 weeks, and then sterilising, evaporating, and passing twice through a Chamberland filter. The resulting fluid is practically a solution in glycerine of the cellular metabolic products of the organism and contains one or more toxic bodies which may be either of the nature of a ferment, albumose, or alkaloid. It is used chiefly for diagnostic purposes in doses of one cubic millimetre, which in tuberculous patients produce a rise of temperature and inflammatory reaction of neighbouring tuberculous lesions. If this reaction is absent double the dose is given two days afterwards and, if there is still no reaction, double the last dose is given after another two days. If reaction does not show itself after the third dose the patient is probably not tuberculous. Although this "old" tuberculin is sterilised and there is therefore no danger of inoculating the patient with tubercle by its use, it is much less used for therapeutic treatment than tuberculin Koch T.R., which is prepared from a virulent culture of tubercle by drying, grinding up the

bacilli, and, by washing, removing the extracellular toxins which chiefly constitute the "old" tuberculin. The residue is then made into an emulsion with distilled water after trituration, centrifugalised, and the supernatant fluid pipetted off. To it 20 per cent. of glycerine is added to preserve it and it is standardised so that one cubic centimetre contains ten milligrammes of solid substance. Dilutions can then be made to any required dose and these are heated for an hour at 60° C. in capsules so as to kill any possibly contained living bacilli. The dose is to commence with seldom more than $\frac{1}{1000}$th milligramme, usually less, and is injected subcutaneously with strict aseptic precautions. The injection should cause no rise of temperature and no general or appreciable local reaction. The amount of the dose given at subsequent injections and the intervals between the doses depend on the influence produced by the preceding dose on the opsonic index to tubercle, but the doses of one-half, one, or two milligrammes which were formerly given, are now never employed. Tuberculins have also been prepared by other pathologists, by modifications of the methods given above, or by employing hydraulic pressure to cultures of tubercle, or by oxidising them with hydrogen peroxide so as to convert the toxins into antitoxins. But the tuberculins of Hahn, of Denys, of Béraneck, of Buchner (known as tuberculoplasmin), of Landmann (known as tuberculol), of Hirschfelder (known as oxytuberculin), and of Klebs (known as tuberculocidin and anti-phthisin) are seldom used in this country.

The elaboration of protective substances in the organism can be induced by chemical substances or vaccines prepared from bacteria other than the tubercle bacillus. I myself have used and injected vaccines of pneumococci, streptococci, and the various forms of staphylococci during the past 18 months. These vaccines are emulsions of that species of organism which has produced the disease in the patient and, inasmuch as different strains of the same organism differ greatly, the vaccine should, when possible, be prepared from a pure culture of that particular organism grown directly from the lesion to which it has given rise in the patient. In some diseases this can be done only with difficulty. In pneumonia, for instance, a mouse must be inoculated from the patient's sputum or empyema pus and a pure culture of the pneumococcus obtained from the mouse's heart blood, and a vaccine made from the culture. The emulsion prepared from such a culture must be centrifugalised and standardised so that a certain volume contains the dead bodies of a certain known number of bacteria, plus their products of metabolism. The initial dose must always be small since patients react very differently to injections and it is essential not to induce too marked or too prolonged a negative phase. This is true of any injection of a vaccine, whether it be the first or a subsequent one, but the reaction of any particular patient to a certain vaccine can be gauged from the alteration of his opsonic index after the first dose.

The inoculation of a vaccine is followed always by a certain definite train of events which, according to Wright, is as follows: 1. Upon the inoculation of a vaccine there supervenes a period of intoxication which is characterised by a decline in the anti-bacterial power of the blood. This "negative phase" is more or less accentuated and prolonged according as a larger or smaller dose of the vaccine is inoculated. In the former case the "negative phase" may disclose itself to clinical observation by a temperature reaction and constitutional disturbance. In the latter case the "negative phase" may be quite unaccompanied by clinical symptoms. 2. Upon the "negative phase" there follows a "positive phase." This phase, the characteristic feature of which is an increase in the anti-bacterial power of the blood, corresponds to a period of increased resistance. A curve which shows graphically the changes in the anti-bacterial power of the blood runs up in many cases to a sharp peak and sinks away first comparatively rapidly and afterwards more slowly. There are associated in many cases with the climax of the "positive phase" a sense of increased physical vigour and a very pronounced feeling of well-being. 3. After the negative and positive phase the blood may be maintained for a variable period (after tubercle inoculations occasionally for as long as a month) at a somewhat higher level of anti-bacterial power than before inoculation. Or—and this in connexion with inoculations of tubercle vaccine is a more usual event—the anti-bacterial power of the blood may over and over again fall back after ten days or a fortnight to the level at which it stood anterior to the inoculation.

If the right dose has been given the negative phase will not be too marked or unduly prolonged and will soon be followed by a well-marked positive phase, and in succeeding inoculations the negative phase will be still less. But if too large a dose be given or it be injected when the index is falling the positive phase will make its appearance very late or not at all. I purposely lay stress on this point because some of the first injections which I gave more than 18 months ago were too large, and I have known an injection of $\frac{1}{10}$th or $\frac{1}{20}$th milligramme to be followed by a negative phase which was so marked as to last for weeks. It seems to be generally agreed that only the minimal dose must be employed which will produce a satisfactory response and this must not be increased until it ceases to produce its effect. The dose, moreover, must not be repeated until the effect of the preceding dose is passing off. If it were possible to produce a summation of positive phases it would be advantageous to give successive doses at short intervals, so as to produce a maximal favourable effect, but such summation is not possible in the case of tubercle. Each inoculation, therefore, produces its effect independently, and it remains to take the greatest advantage possible of the increased elaboration of protective substances which the artificial stimulus has produced. It is obvious that this can only be done by bringing the protective substance as closely as possible into contact with the bacteria which are the cause of the disease. This is simple enough when the bacteria lie within easy access of the blood stream, but when they are flourishing in the tissues in circumstances most favourable to their growth, remote from the blood stream and in contact only with a lymph which is naturally poor in anti-bacterial substances, the mere increase of the opsonic power of the blood is not sufficient. The opsonin must be brought into direct action with the bacilli in the diseased focus, and this can only be done by increasing the lymph flow through that focus. When it is situated near the surface this may best be brought about by the application of counter-irritants, rubefacients or heat, either dry or moist, in the form of hot-water bottles, hot-water tins, or the commonly used hot boric fomentations. When the focus or disease is in a joint Bier's method of passive congestion, used with so much success in this hospital by Mr. A. E. J. Barker, is one of the greatest service. The effusion of lymph produced by each of these methods is very considerable, and, in addition, the viscosity and coagulability of the blood can be greatly diminished by the internal administration of decalcifying agents, such as citric acid. The diseased tissues can thus be irrigated by an increased flow of lymph, and if this lymph contains an amount of protective substance which has been artificially increased by means of vaccines the fight against the disease germs is carried out under conditions which are much more likely to lead to their destruction. In some cases the surgeon can render the greatest assistance by operative removal of part or the whole of the diseased focus. It is, however, to be borne in mind that in the case of abscesses cure is not brought about merely by the evacuation of the pus and the bacteria contained in it, but rather by opening up the channels which have been closed by the pressure and the vessels which have been blocked, so as to re-establish the stream of blood and lymph containing protective and anti-bacterial substances. That these are normally wanting in the pus of an abscess can easily be shown by centrifugalising the fluid and proving that the liquid portion contains no opsonin. Apart from artificial increase of protective substance by injections of vaccines we must always remember the possibility of a similar increase by means of auto-inoculation, but localised bacterial infections give rise to them very scantily or not at all. Such infections run a chronic course over long periods of time, and do not tend to get well. In such cases the protective substance, if it is to be increased at all, must be increased artificially.

The opsonic index having been determined, it remains to deduce from this some conclusions as to the patient's state. If the case be one of suspected tubercle and the opsonic index to tubercle be as much as 30 per cent. above or below normal, a positive diagnosis may be made. An index to tubercle below 0·8 is undoubtedly abnormal and indicates either a strong disposition to infection such as is to be expected in a member of a family several of whom have already shown signs of pulmonary tuberculosis, or that infection has already taken place. There is not sufficient evidence to show whether the low index is necessarily the result of infection in any particular case, but this is probable if the index determined

from time to time shows considerable variations. From the point of view of diagnosis, where tubercle bacilli cannot be found in the sputum, such a series of observations showing the presence or absence of periodic variations in the index is of the greatest importance and may be the means of the disease being arrested and the patient cured before the bacterial infection has assumed serious proportions, in other words, we may by this means be able to make an earlier diagnosis than would otherwise be possible and send the patient to a sanatorium in time to effect a rapid cure. Some observers think, however (and I agree with them), that a low index may precede infection, and even be the cause of infection, owing to an inborn or acquired inability to manufacture a sufficient quantity of protective material. From the point of view of prognosis a low index necessitates a very guarded prognosis, either as regards the possibility of infection or the relapse of a so-called sanatorium cure. Bulloch examined 14 picked cases of such cures and found their resistance low in every case except one, and of these cases one, which was considered a perfect cure, relapsed within a year.

An index appreciably above normal means, as a rule, that infection has already taken place, especially if repeated estimations show considerable fluctuations of the opsonic index. Bulloch estimated the opsonic index in 44 healthy medical students and 40 healthy hospital nurses, and for the 84 individuals he got an average index of 0·96. The variations in health range from 0·8 to 1·2. A phthisical patient, however, may have an index considerably more abnormal than this. It may be more than 50 per cent. below, or more than 100 per cent. above, normal and, in addition, the patient's index to staphylococci, streptococci, or pneumococci, or even to all three, may at the same time be quite abnormal. In such a case there is, of course, a mixed infection. In acute recent cases the index to tubercle is generally low, whether it be a lesion of the lungs, joints, or skin, because the focus of disease has not been shut off by fibrous or granulomatous tissue and toxic material is absorbed at varying intervals into the circulation and negative phase succeeds negative phase or becomes superimposed on preceding negative phase. Where the immune body is deficient, the patient's general health bad, and resisting power low the index is low, and a very small amount of tuberculous toxin is sufficient to produce a marked depression of the opsonic index. If, however, the tuberculous lesion is of old standing and has to a large extent become isolated by fibrous tissue and shut off, as it were, outside the organism the opsonic index may be considerably above the normal. In such a case the doses of toxin which enters the circulation are small, and after each such auto-inoculation the resulting negative phase has time to be succeeded by a positive phase. In fact, the patient's protective mechanism is working under fairly satisfactory conditions and if it can only be stimulated to produce sufficient opsonins the tubercle bacillus may be worsted and a cure of the patient effected. But it is essential for success that the auto-inoculations shall be properly spaced and shall not succeed one another before the negative phase which succeeds each inoculation has passed off. When the bacterial infection is localised, as in chronic lupus and many cases of boils and acne, little if any auto-inoculation occurs and there is no constitutional disturbance due to the microbe, so that in such cases most excellent results can be obtained by means of vaccines. In addition to such injections the patient's general health must be improved and the conditions which have rendered him liable to infection removed so far as possible, so as to increase the natural as well as the artificial immunity brought about by the inoculations.

But tubercle of the lungs is in a different category. One has known so many of these cases lose ground, even when treated early and under the most favourable hygienic conditions in Swiss health resorts and elsewhere, because they are inoculating themselves from their pulmonary lesion and from carelessness and inattention to details these auto-inoculations are allowed to succeed one another too rapidly, causing superposition of negative on negative phase. The constitutional disturbance which results from such a localised bacterial infection of the lungs shows itself in pyrexia, weakness, and anæmia, and when the tuberculous infection is accompanied (as is usually the case in phthisis) by streptococcic, staphylococcic, or pneumococcic infection these symptoms are still more marked. Such a patient should be placed at rest in a pure atmosphere as free as possible from germs and under the best obtainable external conditions until his lung mischief has quieted down and auto-inoculations have so far as possible ceased and his opsonic index become fairly constant. Small doses of tuberculin may then be injected and the effect on his opsonic index estimated, at first frequently and afterwards at such intervals as will enable the duration and degree of the negative and positive phase caused by each injection to be known, having regard also to the possibility of intercurrent auto-inoculations, each of which would, of course, until its effect had passed off, prohibit the injection of tuberculin. Where it is possible to determine the nature of a mixed infection, vaccines prepared from the organism which is associated with the tubercle bacillus in the patient should be employed.

Tuberculous affections, in which surgical treatment is necessary, can be considerably benefited by simultaneous injections with tuberculin. Through the kindness especially of Mr. R. J. Godlee, of Mr. B. Pollard, and of Mr. R. Johnson, I have been able to watch the effect of such treatment in some of their cases in University College Hospital and I take this opportunity of thanking them most cordially. It must be remembered that the effect of a surgical operation on a tuberculous focus is to throw some of the toxin into the circulation and so depress the resistance of the individual. This negative phase is necessarily disadvantageous to the patient, even if it does not directly interfere with the healing of his wound, or, coinciding with an accidental auto-inoculation of the patient, lead to general tuberculosis. If, however, the opsonic index be raised before operation by suitable injections of tuberculin, the negative phase due to the operation becomes superimposed on a positive phase produced by artificial inoculation and its injurious effects are masked. Tuberculin administered after operation may not only assist in the immediate recovery of the patient but may also help to prevent recurrence of the disease, especially if it has been found impracticable to remove every tuberculous focus. Such injections must, of course, be kept up over a considerable period of time.

I should like to refer briefly to two cases of Mr. Godlee's which were operated on in January, 1906, and have given excellent results. The first was a woman, aged 34 years, living in the country, who had lupus of the left cheek for 26 years. She had been under treatment at a skin hospital for two and a half years and had had about 600 exposures to x rays as well as much other treatment without curing the lupus. When she came under Mr. Godlee's care she had a patch of lupus about three inches long by two inches broad, superficially ulcerated and merging into scar tissue about an inch wide at the lower edge. There was a small outlying nodule on the left ala nasi. Brown pigmentation and dilated venules were present on the side of the face and lips as a result of the x rays. On Jan. 23rd her opsonic index was 0·58. She was given an injection of $\frac{1}{10000}$th milligramme of tuberculin. On Jan. 31st her opsonic index was 0·76, and on this date she was operated on by Mr. Godlee. An incision was made all round the affected area of the skin and the included area dissected off the deeper structures. Bleeding was stopped by torsion, hot water, and adrenalin. The raw surface was covered in by Thiersch grafts cut from the front and inner side of the right thigh. On Feb. 1st her opsonic index had fallen to 0·62 and on the 7th she was given a second injection of tuberculin and again on the 13th and 20th. On the 27th the skin graft had completely taken and she left the hospital for her home in the country. Since then she has attended at the hospital from time to time and has had four more injections of tuberculin, the last dose of $\frac{1}{10000}$th milligramme on Sept. 11th, when her opsonic index was 0·94. There was no recurrence of the lupus.

The second case was that of a man, aged 38 years, who had already had one tuberculous testicle removed and was admitted under Mr. Godlee's care to have the second testicle removed and a tuberculous ulcer of the tongue excised. This was done on Jan. 31st, 1906. In the skin of the arms and trunk were the scars of nodules (presumably tuberculous) which had already been cut out. Before operation his opsonic index was 0·62 and the day after operation it was 0·51. On Feb. 5th it was 0·58, and on the 7th he had an injection of $\frac{1}{10000}$th milligramme of tuberculin, which was repeated three times during his stay in hospital, his opsonic index on March 7th being 1·1. This gradually dropped to 0·83 on July 31st, when he came to London and was given an injection of $\frac{1}{10000}$th milligramme. He writes that he is feeling well, is at work, and has had no recurrence since leaving the hospital.

A case of Mr. Pollard's is also of interest in that the tuberculous affection was acute when the patient came under his care.

A girl, aged 11 years, was admitted to University College Hospital on May 18th, 1906, and discharged on June 27th cured. Three years ago she was seen in the out-patient department by Mr. Pollard for signs of tuberculous disease of the left hip. She was put on a Thomas double hip splint and remained on it for a year. The symptoms gradually subsided and the disease appeared to have cleared up. She was kept lying down for another six months, then she was up and about. Since then, during the last six months, she had several bad falls and the mother attributed the present condition to these falls. When admitted the right hip was greatly swollen and there was a large abscess on the anterior and outer parts of the joint. The skin over the abscess was slightly red. The hip-joint was quite fixed in good position, the limb being slightly abducted and rotated out. There was some tilting down of the pelvis on the right side with one and a half inches apparent lengthening, but in reality half an inch shortening. There was no sign of disease in any other joint or organ. On May 19th Mr. Pollard operated by the usual incision for an anterior excision of the hip. The acetabulum was found to be perforated and an abscess inside the pelvis was evacuated, the diseased bone scraped and a counter opening made at the lower part of the abscess and two tubes inserted. She suffered considerably from shock. On admission the patient's temperature was 100·6° F. but after the operation it did not rise above 100·2°. Seven days after the operation she was given an injection of $\frac{1}{1,000}$th milligramme tuberculin T.R. Next day her highest temperature was 99·2° but after that it did not rise above 99°. Six days after this injection and 13 after the operation, a second injection of $\frac{1}{1,000}$th milligramme tuberculin was given, and again a third dose on June 22nd, her temperature now being normal, her appetite good, and only small granulating surfaces present where the tubes had been. On June 27th she left the hospital and went to the seaside, her opsonic index then being 1·1 as compared with 0·68 when first examined. From there she came to the hospital at the beginning of August and was given a further dose of $\frac{1}{1,000}$th milligramme tuberculin. On Sept. 24th her opsonic index was 0·92 and she is apparently quite cured.

My thanks are due to Mr. P. M. Heath, surgical registrar, for the clinical notes of these cases.

It is, of course, possible that these cases might have done as well without tuberculin, but their past history was in each case unfavourable and showed a tendency to recurrence, while their power of resistance to the tubercle bacillus was low. This was increased by tuberculin injections, and it is reasonable to suppose that their rapid recovery was at least aided by increasing their resisting power to the bacterial infection. I will not weary you with any more cases, but I might refer you to a paper in THE LANCET of Oct. 27th, 1906, p. 1130, by Turton and Parkin of Hull giving details of 34 cases of various kinds which they have recently treated in their practice, in 30 of which the injection of bacterial vaccines gave excellent results. The results of treatment of some dermatological cases have already appeared in a paper by Pernet and myself in the October, November, and December numbers for 1906 of the *British Journal of Dermatology*. So many other successful cases have now been recorded that the employment of bacterial vaccines must in the future prove of the greatest service in the treatment of disease when controlled by the method which Wright and Douglas have so ably elaborated. They must in many cases be used in conjunction with other methods, for as long as a patient has a focus of disease he is liable to reinfection. In conclusion, I have to express my indebtedness to Dr. W. Bulloch for much valuable advice and assistance and to Professor Sidney H. C. Martin for his kindly encouragement and for permitting me to avail myself of the resources of his laboratory.

Park-street, Grosvenor-square, W.

LITERARY INTELLIGENCE.—Mr. James Stanley Little, from whose pen we publish this week an interesting lay view upon the Riviera as a health resort, is publishing through Messrs. W. H and L. Collingridge a new work entitled "The Doom of Western Civilisation." Mr. Little's title is probably more pessimistic than his book, for his previous writings lead us to believe that he thinks a good deal of vitality still remains in the British Empire.

A CASE OF HÆMORRHAGIC CYST OF THE SPLEEN.

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THE patient, a male, aged 40 years, was admitted into St. Thomas's Hospital under the care of Mr. Clutton on Nov. 25th, 1905. He was at that time a coal porter, but had been in the Marines for 21 years and had served abroad in various parts of the world for, in all, 15 years. There was a clear history of malaria, but he denied having ever had syphilis. The family history was of no interest. Seven weeks previously to admission he noticed a small swelling on the inside of the left thigh just above the knee. This increased in size so rapidly that in less than a month he was unable to walk. On admission a pulsating swelling, having all the characters of an aneurysm of the popliteal artery, was present on the inner side of the left thigh just above the knee. The leg was markedly wasted and, in common with the rest of the body, was covered with a pustular rash of a scabetic character which, according to the patient's statement, had been present for some time. There was well-marked general arterio-sclerosis and no pulsation could be felt in the peripheral arteries below the aneurysm. The liver and spleen could be felt to be enlarged. The urine contained a trace of albumin. During the few days preceding operation the aneurysm increased rapidly in size, the circumference of the thigh, which on admission was 14½ inches, rising to 15¾ inches three days later. At the same time the skin over the aneurysm began to show signs of pressure. On Nov. 28th Mr. Clutton operated and ligatured the femoral in Hunter's canal, the walls of the artery being found to be extensively diseased. During the next few days the temperature assumed a septic type, with signs of suppuration in the neighbourhood of the aneurysmal sac, and at the same time suppuration became more active in the pustules on that leg. There were no signs of gangrene in the leg, the state of the circulation being as before the operation. On Dec. 3rd an incision was made over the sac without actually opening the latter and extensive cellulitis was found. As will be detailed below, suppuration had actually taken place in the sac, the infection having presumably reached it from the pustules in the overlying skin, the ligation having probably hastened events by diminishing the blood-supply to the parts. After the incision the temperature fell but death took place two days later.

Post-mortem examination.—Only a partial necropsy was allowed. The skin over the aneurysm was in a sloughing condition and the sac was found to be filled with suppurating blood clot. The femoral and popliteal arteries were in a state of advanced atheroma with extensive calcification. The lumen of the femoral was firmly occluded by the ligature. The heart was enlarged, mainly owing to hypertrophy of the wall of the left ventricle. Both mitral and aortic valves were thickened, but were competent when tested in the usual manner; there were no recent vegetations upon any of the valves. There was well-marked atheroma of the aorta, though not so extensive as might have been expected from the condition of the femoral and popliteal arteries. The peritoneum and intestines were normal. The liver was enlarged, weighing 86½ ounces, and was pale in colour and markedly cirrhotic. In addition, there were several deep puckered scars, resembling those caused by the healing of gummata. The cut surface showed the fibrous tissue to be increased, dividing up the parenchyma into islets in the manner usual in polylobular cirrhosis. There was slight enlargement of the kidneys, the organs weighing 7¼ and 7 ounces respectively. The capsules were adherent and on stripping them a coarsely granular surface of an unusual appearance was left, the elevated areas being of a dead white colour, in striking contrast to the darker coloured depressed portions. The amount of cortical substance was relatively diminished and was of a white colour, whilst the pyramids were dark. The renal arterioles were moderately thickened. The spleen was converted into an enormous unilocular cyst, measuring about 10 inches by 6 inches, of a dark indigo colour, with an irregular bossy surface. There were numerous adhesions, of considerable standing, between the peritoneal surface and the surrounding organs. On section the cyst was found to contain nearly a pint of dark, brownish-red, turbid fluid,

which proved to be altered blood. The main mass of the splenic substance formed the outer and part of the posterior walls of the cyst, was about four inches long, and roughly maintained the shape of the normal spleen. Another good-sized mass of splenic substance was situated on the inner wall near the hilum, and between these two a broad bar of it extended transversely, roughly dividing the cyst into two nearly equal compartments, an upper and a lower. The splenic substance was much tougher than normal. The wall of the cyst varied from about one-eighth to one quarter of an inch in thickness; in some places it appeared to be composed of fibrous tissue only, in others splenic substance could be seen inclosed in the fibrous tissue. The inner surface of the wall was rough and coated with remains of blood clot, whilst on the peritoneal surface were remains of adhesions, torn through in removal. The main trunk of the splenic artery was found entering at the hilum; it was somewhat thickened, but not markedly so. Fine probes were passed into the main artery, which traversed the transverse bar of splenic substance mentioned above, but all attempts to discover a branch communicating with the interior of the cyst were unsuccessful.

The accompanying illustration (Fig. 1) shows the organ

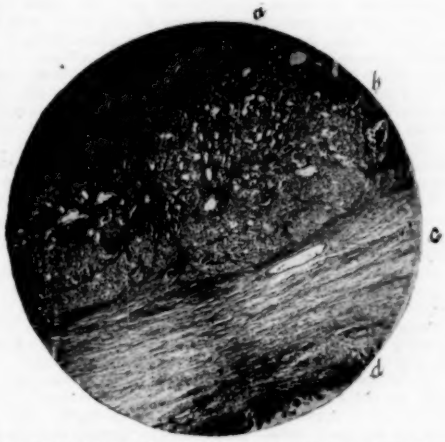
FIG. 1.

The cyst viewed from the front. The two compartments are well shown; a pad of wool has been inserted into the lower one to prevent it collapsing while being photographed.

viewed from the front and the cyst opened by a transverse cut. The remains of the spleen are seen on the right of the figure and a probe enters the splenic artery on the left at the hilum, to emerge in the spleen substance where the artery divides into several branches. The two compartments of the cyst are well shown.

Microscopical examination.—Sections of the spleen showed great thickening of its peritoneal coat. The spleen substance proper was divided from the cavity of the cyst by a fibrous tissue coat, of less density than that on the peritoneal surface, which merged into the remains of blood clot everywhere lining the cavity of the cyst; no limiting layer of cells was present. The substance of the spleen showed a slight but distinct fine fibrosis. The Malpighian bodies were well developed and quite unaffected by the fibrosis. A large amount of pigment (which gave the reaction for free iron) was scattered throughout the section. The cells contained in the trabeculæ differed from the normal only in the higher proportion of polymorphonuclear neutrophiles to lymphocytes and in the markedly increased number of coarsely granular eosinophile cells, the latter forming a striking feature of sections stained by Leishman's method. Sections stained with methyl violet showed slight amyloid degeneration in the trabeculæ throughout the spleen substance, the Malpighian bodies being unaffected. In the thicker parts of the cyst wall (see Fig. 2) three distinct layers were present—an outer fibro-muscular layer, an inner fibrous lining of more open texture merging into the altered blood clot, and a middle zone consisting of remains of splenic tissue undergoing fibrosis. In the inner layer a good deal of pigment, some of which gave the reaction for free iron, was present. There was no sign of any layer of

FIG. 2.



A portion of the cyst wall where the three layers are well defined: (*a*) outer fibro-muscular layer; (*b*) middle layer of spleen pulp; (*c*) inner fibrous layer; and (*d*) blood clot forming lining of cyst. (1 in. obj. B eye-piece.)

cells lining the cyst cavity. The middle layer resembled the spleen, as described above, but the fibrosis and increased proportion of coarsely granular eosinophile cells were more marked. In the splenic artery there was slight patchy thickening of the intima in the portions prepared for microscopy, but there were no large patches of degeneration and no interruption of continuity of the endothelium. No amyloid degeneration could be detected. There was advanced cirrhosis of the liver of the polylobular type with well-marked perihepatitis, bands of fibrous tissue extending downwards from the thickened capsule into the liver substance. The interstitial fibrous tissue was extensively infiltrated with round cells, of which the polymorphonuclear neutrophiles formed by far the larger proportion. Fatty change in, and necrosis of, the liver cells were very marked and in some areas the liver cells had broken down into masses of débris, these latter changes being evidently the result of the septic infection from the suppurating aneurysm. All the vessels in the liver showed well-marked amyloid degeneration. In the kidney the usual changes of chronic interstitial nephritis were well marked and in addition there was amyloid degeneration in the vessels and glomeruli. The interstitial tissue was very cellular and here, too, the high proportion of polymorphonuclear neutrophile cells was noticeable. All the vessels showed well-marked thickening.

Non-parasitic cysts of the spleen are of extreme rarity and in text-books of pathology are dismissed with a bare reference to their existence. The Hunterian Museum of the Royal College of Surgeons of England contains one specimen of a hæmorrhagic cyst from the human subject and one of a serous cyst in the spleen of an ox. Attention was first drawn to the condition by Andral in 1829, and since then some 32 cases observed during life and about 20 met with accidentally at necropsy have been recorded.

Heinricius[1] has collected all recorded cases up to 1904, and discusses fully the various theories which have been put forward to explain the formation of these cysts; whilst lately Powers[2] has added some further cases. Two classes of cyst formation are discussed by Heinricius with illustrative cases: (*a*) serous cysts, usually multiple and of small size, which are considered to arise either from dilatation of

[1] Heinricius: Archiv für Klinische Chirurgie, 1904, vol. lxxii., p. 138. (This paper contains a bibliography of the subject up to 1904.)
[2] Powers: Annals of Surgery, 1906, part civil.

lymph vessels or from inclusions of peritoneal endothelium; and (*b*) hæmorrhagic and sero-sanguineous cysts, single and usually of considerable size, which he, in common with other observers, regards as being due to the rupture of an intrasplenic vessel with subsequent encapsulation of the extravasated blood. Powers further differentiates two varieties of this latter class: one form originates in a subcapsular hæmorrhage, slight but continuing for a long time, the peritoneal capsule undergoing a low form of inflammation with the formation of adhesions and the spleen being liable to atrophy from the pressure of the cyst; whilst in the second form the hæmorrhage takes place deep in the parenchyma and the walls are formed of normal splenic tissue, which in time becomes transformed into fibrous tissue, the cyst tending as it enlarges to approach the surface. That the present specimen belongs to this variety of Class (*b*) is evident from the large masses of nearly normal splenic tissue contained in the walls of the cyst (as described above).

This case is described in detail as it presents many points which support the view that these cysts arise from rupture of an intrasplenic vessel. The patient was the subject of advanced arterial disease and had a popliteal aneurysm, together with evidence of syphilis in the form of gummatous cirrhosis of the liver and amyloid disease in the viscera. It is possible that there may have been a small aneurysm of one of the branches of the splenic artery, from the rupture of which the hæmorrhage originated, though the absence of any marked disease of the main splenic artery is rather against this. No communication between any of the arterial branches and the interior of the cyst could be discovered, but one cannot lay any stress on this point, as the hæmorrhage would almost certainly proceed from a small perforation, and would probably take the form of repeated small hæmorrhages spread over a long period of time. There was a history of malaria in this case, and in many of the cases quoted by Heinricius mention is made of this point. When present it is an important etiological factor, as the liability of the enlarged malarial spleen to be ruptured by trivial injuries is well known. And when to this predisposition is added atheromatous and amyloid disease of the vessels it is obvious that very slight causes might bring about the extravasation of blood. In some of the cases there was a definite history of trauma, but these were a minority. As regards the anatomical site of the leaking vessel in this case it was probably close to the hilum since the main mass of unaltered spleen substance formed the left-hand wall of the cyst.

In the two papers referred to the questions of symptoms, diagnosis, and treatment are considered, but these I do not propose to enter into here, as they did not come up for discussion in this case, the existence of the cyst being only discovered at the necropsy. The interest of the case lies in the presence of coincident factors which clearly indicate the pathology of one form of this rare condition.

I have to thank Mr. Clutton for permission to make use of the clinical notes of the case.

THE RELATIVE SIZES OF THE MATERNAL PELVIS AND OF THE FŒTUS IN EUROPEANS, EURASIANS, EAST INDIANS, AND BENGALIS.

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SOME time ago there appeared in THE LANCET[1] an interesting and suggestive paper by Captain Clayton A. Lane, I.M.S., entitled "A Clinical Comparison of the Maternal Pelvis and of the Fœtus in Europeans, Eurasians, and Bengalis," in which he tabulated the full measurements of 116 pelves, the weights of 357 children, and the measurements of the heads of 158 children, and from the results obtained he enunciated a law that: "The child grows in utero in such a manner, and at such a rate, that at full term his size is proportional to that of the mother's pelvis through which he has to pass in order to be born." At a later date a leading article on this paper appeared in the same journal.[2] At the time of reading these articles I was holding the post of resident surgeon to the Eden Hospital for Women, Calcutta, and I thought that as I was in such a favourable position for the work it would be both interesting and instructive to carry out a further course of investigations on the same lines, but which should embrace a far larger series of cases. I began this work in October, 1903, and with the exception of a few weeks' break in April and May, 1904 (due to illness), I continued it until I relinquished my appointment in June, 1905. I endeavoured to adopt as far as possible exactly the same methods of weighing and measuring the children, and of measuring the pelvis, as were employed by Lane and fully

TABLE I.—*Showing the Measurements in Inches of the Pelvis for Varying Lengths of Conjugate Diameter.*

Length of the conjugate diameter.	Number of cases measured.	Length of the interspinous diameter.			Length of intercristal diameter.			Percentage of interspinous to intercristal diameter.
		Minimum.	Maximum.	Average.	Minimum.	Maximum.	Average.	
				Bengalis.				
3·625	6	6·125	8·25	7·187	8·5	9·75	9·146	78·581
3·75	22	6·0	8·5	7·364	7·625	10·5	9·222	79·853
3·875	49	5·25	9·0	7·383	8·75	10·375	9·429	78·301
4·0	240	5·75	9·0	7·415	8·0	10·75	9·527	77·821
4·125	84	5·75	8·75	7·495	8·625	10·75	9·674	77·476
4·25	61	6·0	9·0	7·273	8·125	10·5	9·59	75·839
4·375	11	6·5	9·25	7·909	9·375	10·75	10·0	79·09
4·5	8	6·0	8·5	7·453	9·25	10·875	9·906	75·237
4·75	2	8·25	9·25	8·75	10·5	10·75	10·625	82·353
				Other Natives.				
3·25	1	7·25	7·25	7·25	9·5	9·5	9·5	76·316
3·5	3	6·25	6·75	6·417	8·125	8·875	8·583	74·784
3·625	2	5·5	6·625	6·062	7·25	8·75	8·0	75·775
3·75	4	5·5	7·25	6·656	7·75	9·375	8·875	74·997
3·875	5	7·125	9·125	8·05	9·5	10·5	10·025	80·299
4·0	33	6·0	9·0	7·519	8·75	10·75	9·633	78·055
4·125	21	7·0	9·5	7·929	9·0	11·25	9·964	79·578
4·25	16	6·625	8·75	7·633	9·25	11·0	9·984	76·482
4·375	3	8·0	8·5	8·25	9·625	11·0	10·5	78·571
4·5	1	8·0	8·0	8·0	10·0	10·0	10·0	80·0
				East Indians.				
3·5	1	6·5	6·5	6·5	8·125	8·125	8·125	80·0
3·75	1	7·75	7·75	7·75	9·5	9·5	9·5	81·579
3·875	3	6·75	8·0	7·208	9·125	10·0	9·458	76·211
4·0	20	6·5	8·625	7·462	8·625	10·875	9·881	75·519
4·125	22	6·125	9·25	7·534	9·25	11·375	10·062	74·976
4·25	16	6·5	9·0	7·742	9·25	11·0	10·062	76·947
4·375	7	7·25	9·0	8·089	9·0	11·125	10·178	79·475
4·5	4	6·875	8·0	7·531	9·625	11·25	10·344	72·805
				Eurasians.				
3·75	1	8·125	8·125	8·125	10·0	10·0	10·0	81·25
3·875	1	7·0	7·0	7·0	9·25	9·25	9·25	75·676
4·0	33	6·25	8·5	7·53	8·75	11·0	9·958	75·613
4·125	52	6·125	9·25	7·534	9·0	11·0	9·995	75·378
4·25	60	6·125	9·25	7·698	9·0	11·75	10·275	74·919
4·375	34	6·5	9·25	7·805	9·0	11·625	10·231	76·289
4·5	20	6·625	8·875	7·775	9·25	11·125	10·356	75·077
4·625	2	7·75	8·5	8·125	10·75	12·0	11·375	71·429
4·75	2	8·5	9·25	8·875	10·75	10·75	10·75	82·558
				Europeans.				
4·0	4	7·5	8·5	8·062	10·125	10·625	10·437	77·244
4·125	14	7·0	8·625	7·732	9·375	11·5	10·339	74·795
4·25	25	6·75	9·375	8·06	8·75	12·125	10·665	75·574
4·375	19	7·0	10·25	8·053	10·0	12·0	10·711	75·184
4·5	24	6·875	10·75	8·446	10·0	12·5	11·083	76·217
4·625	1	7·25	7·25	7·25	10·0	10·0	10·0	72·5
4·75	1	9·375	9·375	9·375	11·5	11·5	11·5	81·522
4·875	2	8·25	9·25	8·75	10·625	11·625	11·125	78·652

[1] THE LANCET, Sept. 26th, 1903, p. 885.
[2] THE LANCET, Oct. 3rd, 1903, p. 963.

TABLE II.—*Showing the Maximum and Minimum Proportional Differences between the Interspinous and Intercristal Diameters for Varying Lengths of the Conjugate Diameter. The Intercristal Diameter is taken as 100.*

Conjugate diameter in inches.	Minimum percentage of the interspinous to the intercristal diameter.	Maximum percentage of the interspinous to the intercristal diameter.
	Bengalis.	
3·625	68·055	84·616
3·75	72·222	89·474
3·875	56·0	86·747
4·0	59·756	87·671
4·125	62·162	94·595
4·25	68·354	89·744
4·375	67·532	87·804
4·5	64·865	81·013
4·75	78·571	86·047
	Other Natives.	
3·25	76·316	76·316
3·5	70·423	83·077
3·625	75·714	75·862
3·75	74·324	77·333
3·875	75·0	88·905
4·0	65·432	94·737
4·125	73·077	86·842
4·25	70·455	85·0
4·375	72·727	85·714
4·5	80·0	80·0
	East Indians.	
3·5	80·0	80·0
3·75	81·579	81·579
3·875	72·973	80·0
4·0	68·965	85·0
4·125	65·934	89·157
4·25	67·045	85·714
4·375	74·419	85·0
4·5	71·111	79·489
	Eurasians.	
3·75	81·25	81·25
3·875	75·676	75·676
4·0	62·651	85·0
4·125	63·415	90·278
4·25	58·333	87·179
4·375	65·116	85·333
4·5	68·25	80·263
4·625	70·833	72·093
4·75	79·071	86·047
	Europeans.	
4·0	70·588	83·951
4·125	69·767	82·666
4·25	66·666	85·227
4·375	65·555	90·6
4·5	65·909	88·636
4·625	72·5	72·5
4·75	81·522	81·522
4·875	77·648	79·57

TABLE III.—*Showing the Average Clinical Measurements of the Pelvis in Europeans, Eurasians, East Indians, Bengalis, and Other Natives.*

—	Average conjugate diameter in inches.	Average interspinous diameter in inches.	Average intercristal diameter in inches.	Average percentage of the interspinous to the intercristal diameter, the latter being 100.
Europeans ...	4·336	8·132	10 737	75·734
Eurasians ...	4 227	7 669	10·163	75·172
East Indians	4·145	7·586	9 981	76·32
Other natives	4·041	7·584	9 722	78·012
Bengalis ...	4·044	7·422	9·564	77 684

explained by him in the paper above referred to, so as to enable a just comparison to be made between his figures and those that I should obtain. His methods were as follows. The children were all weighed on the same scales with the same weights, and all the measurements were made with the same pair of tested callipers; in the case of the bi-mastoid diameter the points of the callipers were placed in the

TABLE IV.—*Showing the Average Weight in Pounds and Measurements in Inches of the Heads of Infants taken within 24 Hours of Birth.*

—	Number of cases measured.	Weight.	Bi-parietal diameter.	Bi-mastoid diameter.	Subocciptal bregmatic diameter.	Occipito-frontal diameter.	Maximum diameter.
			Bengalis.				
Males... ...	167	5·744	3 387	2·768	3 594	4·263	4·814
Females ...	162	5·679	3 401	2·724	3·564	4 209	4·777
Total ...	329	5·712	3·394	2 746	3·574	4 237	4·799
			Other Natives.				
Males... ...	27	5 924	3·44	2 782	3·634	4 273	4 824
Females ...	28	6·19	3 459	2·835	3 598	4·254	4·817
Total ...	55	6·059	3·45	2 809	3 616	4·264	4·82
			East Indians.				
Males... ...	26	6·594	3 553	2·856	3·678	4·375	4·933
Females ...	32	6 554	3·48	2 848	3·637	4·242	4 777
Total ...	58	6 572	3 513	2·851	3·655	4·302	4 847
			Eurasians.				
Males... ...	80	7·394	3·611	2·953	3·767	4·364	5·011
Females ...	88	6·895	3 547	2·861	3·675	4·314	4·879
Total ...	168	7·133	3 577	2·935	3·719	4 338	4 942
			Europeans				
Males... ...	54	7·605	3·646	2·933	3·806	4·465	5·079
Females ...	35	7 059	3 604	2·936	3·725	4·339	4·943
Total ...	89	7·391	3·629	2 934	3 774	4·416	5·025

TABLE V.—*Showing the Average Weight in Pounds of Children Born through Different Sizes of Conjugate Diameter.*

Size of the conjugate diameter in inches.	Europeans.		Eurasians.		East Indians.		Other natives.		Bengalis.	
	Number of women measured.	Average weight of child.	Number of women measured.	Average weight of child.	Number of women measured.	Average weight of child.	Number of women measured.	Average weight of child.	Number of women measured.	Average weight of child.
3·5	—	—	—	—	—	—	1	6·25	—	—
3·625	—	—	—	—	—	—	1	5·078	4	5·512
3·75	—	—	1	6·675	1	5·484	1	5·187	10	5·59
3·875	—	—	1	8·016	3	7·062	3	6·328	37	5·709
4·0	4	6·969	19	6·949	11	6·009	28	6 026	158	5·583
4·125	15	7·753	43	6·711	19	6·774	9	5·592	57	5·981
4·25	22	7·273	46	7·317	13	6·475	12	6·251	40	5·848
4·375	18	7·133	31	7·568	7	6·987	2	6·836	6	6·122
4·5	22	7·628	15	7·32	3	6·807	—	—	3	5·906
4·625	1	8·375	2	7 211	—	—	—	—	—	—
4·75	1	7·25	1	9·125	—	—	—	—	1	5·625
4 875	1	8·25	—	—	—	—	—	—	—	—

horizontal groove at the base of the mastoid process. The measuring of the other diameters calls for no particular comment. In the case of the pelvis the interspinous diameter was measured by pressing the two thumbs firmly outwards against the anterior superior spines of the ilia and bringing the points of the callipers against the thumbs. The conjugate diameter was measured by sinking the hand in between the two recti abdominis muscles so that the tip of the middle finger was strongly pressed against the promontory of the sacrum (the patient lying on her back with thighs flexed). The hand was then depressed till its radial edge came in contact with the upper edge of the symphysis pubis, the point of contact being marked off by one of the nails of the other hand. The distance from this point to the tip of the middle finger was then measured off by the callipers. I made, however, two slight deviations: first, in most cases I checked the measurement of the antero-posterior diameter at the brim, by measuring the diagonal conjugate as well; and, secondly, I endeavoured to record such smaller differences of measurement as one-eighth of an inch. Although, as pointed out in the editorial article on the subject, it is doubtless impossible to measure with absolute accuracy such small differences in the living pelvis without anæsthesia, still I think it may be contended that the results arrived at will, taken as a whole, represent fairly accurate averages. I have also adopted the same classification into Europeans, Eurasians, East Indians, and Bengalis, with the same meaning to these terms—i.e., Europeans, those of pure European extraction with no admixture of any native element; Eurasian, those of mixed European and native extraction in whom the white element predominates; East Indian, those also of mixed extraction but in whom the dark blood predominates. I have also further included a class "Other Natives," into which I have put all other native women coming from parts of India other than Bengal. I have excluded other classes, such as Jewesses, &c., as they were not measured in sufficient numbers to give figures of any value. Altogether, during this period 941 pelves were measured and 699 full-term children were weighed and measured, the measurement, &c., of full-term children, and pelves of normal women only being recorded.

To compare the results of Table I. (in which for the purpose of economy of space I have combined the measurements shown in Tables I. and II. of Lane's paper) with those obtained by him, as far as these corresponding tables can be compared, his only containing measurements of Bengalis, the well-known fact that the average intercristal

TABLE VI.—*Showing the Average Length in Inches of the Various Diameters of the Heads of Children born through Different Lengths of the Maternal Conjugate.*

Length of the conjugate diameter.	Number of women examined.	Length of the bi-parietal diameter.	Length of the bi-mastoid diameter.	Length of the sub occipito-bregmatic diameter.	Length of the occipito-frontal diameter.	Length of the maximum diameter.
			Bengalis.			
3·625	4	3·344	2·75	3·56	4·281	4·875
3·75	10	3·425	2·625	3·512	4·237	4·762
3·875	37	3·402	2·747	3·547	4·264	4·797
4·0	158	3·381	2·753	3·557	4·244	4·783
4·125	57	3·401	2·774	3·59	4·224	4·827
4·25	40	3·372	2·706	3·669	4·212	4·737
4·375	6	3·521	2·729	3·667	4·21	4·792
4·5	3	3·5	2·667	3·708	4·278	4·8
4·75	1	3·5	2·625	3·75	4·25	4·875
			Other Natives.			
3·5	1	3·125	2·75	3·375	4·25	4·875
3·625	1	3·375	2·75	3·75	4·0	4·75
3·75	1	3·5	2·75	3·5	4·0	4·75
3·875	3	3·542	2·792	3·75	4·25	4·792
4·0	28	3·464	2·853	3·638	4·272	4·808
4·125	9	3·361	2·694	3·53	4·222	4·75
4·25	12	3·479	2·854	3·604	4·21	4·844
4·375	2	3·5	2·937	3·75	4·5	5·0
			East Indians.			
3·75	1	3·25	2·625	3·5	4·25	4·875
3·875	3	3·333	2·792	3·75	4·458	4·958
4·0	11	3·477	2·818	3·625	4·273	4·818
4·125	19	3·559	2·862	3·632	4·296	4·836
4·25	13	3·481	2·885	3·644	4·269	4·808
4·375	7	3·448	2·857	3·732	4·339	4·857
4·5	3	3·542	2·92	3·667	4·417	5·0
			Eurasians.			
3·75	1	3·5	3·0	3·75	4·5	5·25
3·875	1	3·5	2·875	3·75	4·5	5·25
4·0	19	3·5	2·836	3·724	4·336	4·888
4·125	43	3·552	2·895	3·677	4·34	4·904
4·25	46	3·585	2·932	3·728	4·386	4·946
4·375	31	3·597	2·915	3·733	4·431	5·036
4·5	15	3·625	2·875	3·775	4·392	4·992
4·625	2	3·562	2·875	3·687	4·312	4·937
4·75	1	4·0	3·25	3·875	4·625	5·375
			Europeans.			
4·0	4	3·625	2·906	3·75	4·437	5·062
4·125	15	3·625	2·958	3·733	4·383	4·967
4·25	22	3·619	2·937	3·807	4·386	5·023
4·375	18	3·632	2·937	3·736	4·41	4·993
4·5	22	3·653	3·0	3·815	4·523	5·102
4·625	1	3·75	2·75	4·0	4·5	5·125
4·75	1	3·5	2·75	3·75	4·75	5·5
4·875	1	4·0	3·0	3·75	4·275	5·125

TABLE VII.—*Showing the Average Weight in Pounds and Size in Inches of the Heads of Children of Different Pregnancies passing through Pelves of the Same Conjugate Diameter in Bengalis.*

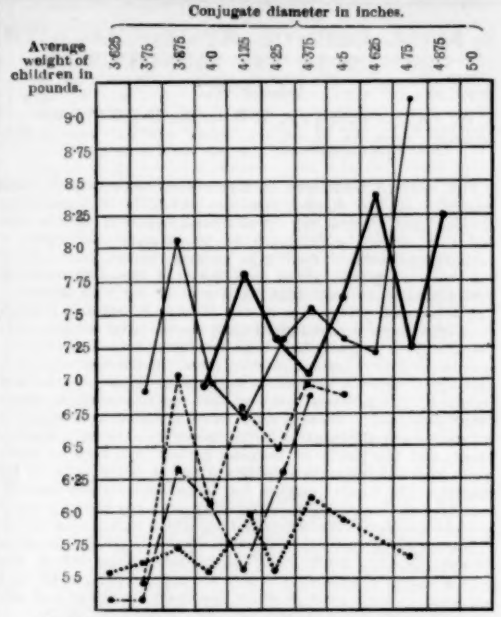
Number of pregnancy.	Number of children measured.	Weight.	Bi-parietal diameter.	Bi-mastoid diameter.	Sub-occipito-bregmatic diameter.	Occipito-frontal diameter.	Maximum vertico-mental.
			Pelves of 3·875 inches Conjugate.				
1	15	5·767	3·408	2·758	3·517	4·275	4·8
2	5	5·45	3·35	2·75	3·475	4·2	4·8
3	7	5·748	3·375	2·714	3·524	4·196	4·75
4	4	6·074	3·437	2·844	3·656	4·437	4·75
6	2	5·265	3·437	2·687	3·5	4·125	4·75
7	1	5·719	3·5	2·75	3·5	4·125	4·625
9	1	6·75	3·75	2·875	3·625	4·375	4·875
10	1	7	3·375	2·375	3·5	4·0	4·75
			Pelves of 4 inches Conjugate.				
1	65	5·4	3·304	2·71	3·502	4·223	4·765
2	42	5·786	3·44	2·815	3·565	4·265	4·83
3	25	5·656	3·385	2·76	3·56	4·25	4·75
4	13	6·117	3·558	2·875	3·683	4·327	4·904
5	6	5·417	3·375	2·729	3·477	4·271	4·71
6	2	5·234	3·25	2·5	3·5	4·125	4·687
7	4	5·594	3·375	2·812	3·625	4·25	4·812
			Pelves of 4·125 inches Conjugate.				
1	22	6·036	3·381	2·744	3·58	4·25	4·847
2	17	5·984	2·397	2·794	3·596	4·221	4·846
3	9	5·88	3·403	2·75	3·583	4·181	4·75
4	3	5·76	3·458	2·792	3·667	4·208	4·833
5	1	6·172	3·5	3·0	3·75	4·375	4·875
6	1	6·547	3·5	2·75	3·75	4·125	4·875
			Pelves of 4·25 inches Conjugate.				
1	18	5·396	3·326	2·701	3·562	4·222	4·778
2	12	5·611	3·396	2·719	3·573	4·208	4·781
3	6	5·669	3·396	2·708	3·604	4·167	4·812
4	1	7·0	3·5	2·75	3·75	4·5	5·0
5	1	6·875	3·5	2·75	3·625	4·5	5·0
6	1	4·578	3·25	2·75	3·25	3·75	4·5
8	1	5·0	3·375	2·375	3·5	4·25	4·75

and interspinous measurements bear no relation to the length of the conjugate diameter is again demonstrated. The differences between the intercristal and interspinous diameters are, on the whole, slightly more marked, but whereas in his table he found that as the conjugate diameter increased in size, the percentage of the interspinous to the intercristal diameter showed a regular successive diminution, my results fail entirely to demonstrate anything of the sort. This remark applies to the measurements of all the different races equally. As none of the figures in my table show any regularity in this respect it would appear probable that it was merely a coincidence that those cases measured by Lane showed this striking regularity of diminution. This particular point seems to me of itself of little importance as these numbers, as he himself mentions, are of no clinical value in any given case; for in any given size of conjugate diameter it will be seen that the interspinous and intercristal measurements vary both actually and relatively within even wider limits than in his tables. It will also be noted that with the highest conjugate diameters this average percentage tends to increase rather than to diminish. In Table II. practically the same facts are brought out as in Lane's corresponding table (III.), except that even greater differences are to be found between the maximum and minimum measurements; but this is exactly what would be expected as the result of the larger number of cases measured.

Turning next to Table III., and comparing this with his corresponding table (IV.), whereas he found that the average measurements of the East Indian pelves were even smaller than those of the Bengali, and, moreover, that the shape of the false pelvis was in them not that of the Bengali, it will be noted that in my table so far from the pelvis of East Indians being smaller, it is on the average larger and the false pelvis is shown to be practically of the same shape; and, furthermore, it will be seen that the Bengali pelvis is smallest, the East Indian next in size, the Eurasian third, and the European largest of all; there would thus appear to be a regular gradation of size in proportion to the admixture of the native element, which is certainly what one would have expected rather than the results obtained by Lane. It may further be noted that the average measurements of the Bengali pelvis and of "Other Natives" are so nearly alike that it would seem to be permissible to argue that the size of the East Indian pelvis would be little, if at all, affected by the question as to whether the native element is Bengali or otherwise.

Coming next to the results of the measurements of the child's head as shown in Table IV., my figures on the whole differ very slightly from those obtained by Lane (*vide* Table V. in his paper); but in comparing Table V. with his corresponding table (VI.), in which he obtains a very remarkable and striking relationship between the size of the child (as gauged by its weight) and the size of the pelvis (as gauged by the conjugate diameter) through which it passes, the weight of the child showing a steady successive rise with the increase in size of the conjugate diameter, my results are not at all so strikingly regular, although they show a tendency in the same direction. This is clearly demonstrated in the chart here given. Comparing Table VI. with his corresponding table (VII.), in which he again obtains a strikingly regular successive increase in the length of the bi-parietal diameter of the child's head, corresponding to the increase in size of the conjugate diameter of the pelvis through which it passed, here again nothing of the sort is demonstrated by the figures obtained by me, though again there is some tendency in the same direction. This once more seems to me to be only what one would expect, for it is but natural that as a general rule a big woman (in whom usually the pelvis is correspondingly large) should have a big child and *vice versâ*.

I have added a further table (VII.) showing the size and weight of the children of various pregnancies passing through pelves of the same conjugate diameter. I have only tabulated four sizes of pelves and these only in Bengalis, because they are the only ones in which I have obtained sufficient numbers of measurements to make the results of any value at all. This table shows again how much the measurements of the child's head passing through the same sized pelvis may vary. There is no doubt that its value would have been far greater had it been possible to obtain measurements of successive children of the same mother,



Bengalis are shown by the dotted line; other natives by the "dot and dash" line; East Indians by the interrupted line; Eurasians by the fine continuous line; and Europeans by the thick continuous line.

but as this has not been feasible I thought it would be worth while to tabulate the results here given. In only one instance did I get the measurements of two successive children born of the same mother, and these were as follows:—

—	Weight in pounds.	Bi parietal diameter.	Bi mastoid diameter.	Suboccipito-bregmatic diameter.	Occipito-frontal diameter.	Maximum vertico-mental diameter.
First child ...	7·6	3·5	3·0	3·75	4·5	5·125
Second child ...	8·6	3·5	3·0	3·875	4·5	5·0

With the exception of the children born through the pelves of 3·875 inches diameter, it will be noted that the size of heads of the first children, as gauged by the bi-parietal diameter, are smaller than the succeeding ones and that there is a gradual increase in size in each succeeding pregnancy up to the fifth, after which the heads again begin to get smaller. The weight of the child shows a general tendency in the same direction, but this is not at all so regular as in the case of the bi-parietal measurements.

In conclusion, it will be seen that the proportion in weight and size of the child's head to the size of the pelvis through which it is born is by no means so strikingly regular as would appear from the measurements obtained by Lane, and certainly does not in any way seem to justify the enunciation of any law on the subject.

Calcutta.

BRISTOL DISPENSARY.—At the annual meeting of the subscribers of the Bristol Dispensary, held on Jan. 11th, the chairman stated that the committee had decided to appoint an additional medical officer in February; the institution will then have nine medical officers on the staff.

A FATAL CASE OF MYXŒDEMA WITH CHANGES IN THE PARATHYROID GLANDS.[1]

BY DAVID FORSYTH, M.D. LOND., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO CHARING CROSS HOSPITAL AND TO THE EVELINA HOSPITAL FOR CHILDREN, LONDON.

THE modern treatment of myxœdema has so affected the mortality of the disease that opportunities of examining subjects post mortem are by no means common. While this result is wholly satisfactory to us as clinicians, from a pathological point of view it is, perhaps, regrettable because the work of recent years suggests that the pathogeny of myxœdema is more complex than was at one time believed. The attempted production of the disease in animals has led to results more contradictory than would have been anticipated. The thyroid has been removed and the chronic symptoms of myxœdema have followed; it has been removed and acute nervous symptoms leading to speedy death have resulted; it has been removed with no untoward accident being produced. These results raise a doubt as to whether myxœdema is attributable to the loss of the thyroid function alone, and the doubt is fostered by the fact that in some cases the administration of the gland extract fails in its results. The whole question has been still further complicated by the supposition on the part of many that the parathyroid glands possess a function of prime importance which is intimately bound up with that of the thyroid. To what extent, if any, these small bodies are concerned in the production of myxœdema is not settled; in fact, as far as I am aware, no account of their condition in atrophy of the thyroid has been published.

The particular case which I am bringing to your notice derives its interest not so much from its clinical features as from the post-mortem findings, yet I feel no excuse is needed for submitting it to this purely clinical gathering. The thyroid gland can without exaggeration be looked on as the peculiar property of our Society seeing that its relation to myxœdema was here established. In these circumstances an account of the parathyroid glands will not be without interest. The patient with whom we are concerned was under observation only a short while before death and the notes of her condition are brief. She was admitted into Guy's Hospital under Dr. W. Hale White, and to him I am indebted for access to the clinical report of which the following are the salient points.

The patient, aged 58 years, married, was admitted to hospital on March 19th, 1906, for "general debility." Her father had died from heart disease at the age of 49 years; her mother had lived to the age of 84 years when she died from old age, and in neither was there any history of thyroidal trouble. The patient bore three children, all of whom are alive and well, the eldest being 26 and the youngest 20 years. There is no history of any family hereditary disease. The previous illnesses include none more serious than scarlet fever and German measles in childhood. The outstanding feature of her adult life appears to have been intemperance. The mental state of the patient disabled her from rendering any trustworthy account of her illness and the details were obtained from the husband. By him the disease was dated back four years, beginning insidiously. Even before that date, however, comment had been made on the inactivity of her habits and on her marked disinclination to expose herself to the open air. For three years the progress of the disease was slow, but 12 months ago she was unable to get upstairs without assistance and since then she had grown more and more inactive. Two or three months before admission the disease began to make rapid strides. Her mind became affected and she grew quite childlike. What little power of locomotion she still retained deserted her and she was quite unable to walk. Persistent pain settled in the back of the neck. She lost control of both bladder and rectum. Her teeth loosened and fell out one after the other without preliminary decay. Her hair, not only on the scalp but from the eyebrows, too, was shed and she rapidly sank into a helpless and apathetic state.

On admission the temperature was 96° F., the pulse was 86, and the respirations were 20. The patient was noted as a little woman with a complexion suggesting the yellow tint of pernicious anæmia. She was singularly dull and listless and the difficulty of communication with her was not lessened by a certain suspiciousness in her attitude towards others. To questions her replies were delayed and were then given in a slow, deliberate manner, with thick articulation. As already mentioned, she was unable to supply details of her past history. She lay still in bed on her back and complained that movement of her legs was painful and of her head very painful. Her arms she used in a slow and lumbering fashion. No teeth remained in her jaws and much hair had fallen out from the scalp but the baldness was more marked in the eyebrows. The tongue was clean but abnormally large. The skin over the whole body was dry, very tough, and yellow, and the slightest touch appeared to give pain, especially on the soles of both feet. The left ankle was red and swollen and the subcutaneous tissue about it pitted on pressure. The hands were cold and spade-shaped and the thyroid appeared atrophied. The pupils reacted to light and accommodation. The calves of the legs were not tender and there was no paralysis though the grip of the hands was weak. Knee-jerks normal; flexor plantar reflex; loss of control of the bladder. The respiratory and circulatory systems presented nothing abnormal. The abdomen was large—35 inches at the umbilicus—but no ascites had formed. The spleen was not palpable but the liver was felt two inches below the costal margin. An examination of the blood showed red corpuscles, 1,700,000 (34 per cent.); white corpuscles, 5000; hæmoglobin, 30 per cent.

The progress of the case was from the first towards a fatal end. The patient's mind wandered considerably and her memory was unretentive of the most recent events. She grew more and more noisy, especially at night, and died on April 2nd, a fortnight after admission. The treatment employed consisted of five grains of dried thyroid extract three times a day and a mixture containing potassium iodide. The former was omitted for a couple of days as it was suspected to be in part responsible for the delirium.

A post-mortem examination was made 12 hours after death. There were old-standing adhesions between the lobes of the lung and between the lungs and diaphragm. The apex of the left lung contained a calcareous deposit and its base showed hypostatic pneumonia. The heart, which weighed 384 grammes, presented some fatty infiltration of the myocardium and hypertrophy of the left ventricle. The anterior cusp of the mitral and all the cusps of the aortic valve were slightly atheromatous, as also was the aorta itself, thoracic and abdominal. The liver slightly fatty and the kidneys with some interstitial nephritis complete the list of organs other than the thyroid and parathyroid which were affected.

Thyroid gland.—A detailed examination was made of the structures in the neck. The whole of the soft tissues anterior to the prevertebral muscles and deep to the sterno-mastoid were removed *en bloc*, including everything from the tongue to the superior mediastinum. These were carefully dissected and every gland discovered was retained for microscopical section. The thyroid itself in the usual position was remarkably small, pale, and indefinite in outline, merging into the surrounding connective tissue. The isthmus was represented only by a fibrous band spanning the trachea. After dissecting the gland away from its attachments its lobes were seen to have none of the characters (colour, consistency, &c.) of the healthy thyroid and, except at the lower pole on each, none of the usual contour. The whole organ was a thin sheet of fibrous tissue wrapped round the front and sides of the trachea. In close connexion with the right lobe were two parathyroid glands, one lying on the lower part of the lateral surface, the other a short distance inferior to the gland. On the left side were four parathyroids, two large and two minute. Of the former, one lay on the lateral surface of the gland, the other just above the point of entry of the inferior thyroid artery. Close to this last were the two minute parathyroids. All six glands were imbedded in much fat and rested on the thyroid without being depressed into its surface. The four largest were elongated ovoids from 0·5 to 1 centimetre in length, the two smallest being mere pin-heads. All were fairly soft in consistency and of a dirty yellowish-brown colour. On the left side below the thyroid gland were two pale brown bodies, of which the note made at the time of the necropsy was "tough, almost fibrous." The nature of these will be discussed below. In addition to these a large number of glands were examined microscopically but all proved to be lymphatic.

[1] A paper read before the Clinical Society of London on Jan. 11th, 1907.

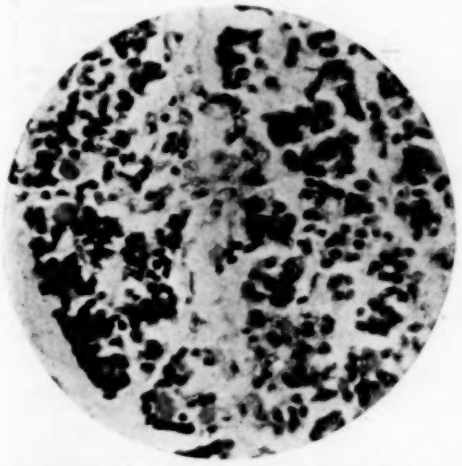
Microscopical appearances of the thyroid and parathyroid glands.—The thyroid presented the well-known features characteristic of myxœdema. There was an almost complete disappearance of gland tissue which had been supplanted by fibrous tissue. Here and there were collections of small round cells and in other places clumps of degenerated thyroid tissue. In these there still remained a suggestion of the normal follicular structure and many of the

FIG. 1.

Parathyroid gland from case of myxœdema (Zeiss A objective). Showing (1) profuse secretion of colloid distending the lymphatics, (2) increase of fibrous tissue breaking up the cells into isolated clumps, and (3) thickened coats of arterioles on extreme right.

altered vesicles inclosed small drops of colloid. The arteries of the gland showed the marked thickening of their coats which has been frequently observed in other cases. The parathyroid glands were compared with those taken from a large number of other subjects and certain points of difference were apparent. The normal gland, it will be remembered, is made up of solid masses of closely packed

FIG. 2.



Another parathyroid from same case (Zeiss D objective). Showing (1) intercellular mesh of connective tissue, (2) much colloid secretion, and (3) tendency of cells to form acinar grouping.

polyhedral cells, the groups being supported by delicate trabeculæ of connective tissue. These cells are arranged for the most part without order, but occasionally they show a tendency to group around a common centre and less frequently a completely formed acinus results, the lumen of which is filled with colloid secretion. The special features wherein the glands from this case of myxœdema appeared to differ from the ordinary glands were: first, in the arrangement of their cells; secondly, in the quantity of their secretion; and thirdly, to a less extent in the stroma and in the walls of the blood-vessels. The arrangement of the cells was unusual owing to the marked tendency they showed to form small vesicles. In contrast to some parathyroids where a more or less prolonged search is required before an example of this acinar arrangement is discovered, in these specimens there were few fields without acini and many fields contained a dozen or more. In each vesicle the epithelium was a layer of cubical cells. The resulting general appearance of the glands was much more suggestive of ordinary thyroid tissue than is usually the case. As regards the features of the individual cells there was no point to be noticed in either nucleus or protoplasm which could not be frequently observed in other parathyroid glands. The colloid secretion was copious. With few exceptions all the vesicles contained this material and drops of it lay between the clumps of unarranged cells. The lymphatics of the gland were distended with the same secretion and on serial section could be traced towards the surface uniting to form large channels which conveyed the colloid away from the gland. After examining some hundreds of parathyroids, in none do I remember

FIG. 3.

A third parathyroid from same case (Zeiss A objective). Showing excessive formation of fibrous tissue whereby a definitely lobular appearance is conferred on the gland.

such vigour of secretion as in these. The slight change mentioned as present in the stroma consisted in some increase of the connective tissue. Certain of the trabeculæ were thickened and in parts of the gland there was a delicate intercellular mesh of connective tissue. In one of the glands there was further a slight thickening of the walls of the arterioles. The two fibrous bodies to which reference has already been made proved on section to possess a glandular structure with a fairly advanced condition of fibrosis—less advanced than in the thyroid, more advanced than in the parathyroids. From the remains of the glandular elements it is not easy to decide whether the bodies were originally accessory thyroids or parathyroids, for the details of structure might represent either the one or the other.

In conclusion, it remains to offer an explanation of the changes in the parathyroids. It is not possible, however, in the limits of this paper to discuss the various interpretations that might be set on these changes and I shall content myself with offering what seems to me the correct solution. I do not think that we should regard the changes in the arrangement of the cells and in the amount of secretion as pathological; rather are they to be interpreted as signs of excessive activity of the glands. The particular reason that we advance for this unusual secretion will depend on the view which we take of the physiological importance of the parathyroids—whether we regard them as glands *sui generis* or as glands possessing a true thyroidal function. Accepting

the latter hypothesis as the conclusion most in accord with available evidence, it seems reasonable to suppose that these changes represent an attempt on the part of the parathyroids to supply the deficiency of colloid left by the atrophy of the thyroid itself. The increase of connective tissue, though not excessive, was considerably more marked than I have seen in any other human gland or, with one exception,[2] in the parathyroid of any mammal or bird. Although five of the six parathyroids were directly continuous with the fibrous capsule of the thyroid, this factor alone will not account for the alterations in the former, because the sixth parathyroid, which lay inferior to the main gland, was quite as affected as its fellows. I look on the increase of fibrous material as pathological, in which case it must be regarded as an early stage of the fibrosis, which had reached so advanced a condition in the thyroid.

In brief, these changes show that the parathyroids have been stimulated to supply in part the want of colloid, but that at the time of death they were being overtaken by the same fibroid degeneration as had destroyed the thyroid.

Harley-street, W.

PYLORIC STENOSIS AND THE CONDITION OF THE PYLORUS DURING LIFE.

BY C. W. MANSELL MOULLIN, M.D. OXON., F.R.C.S. ENG.,

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NON-MALIGNANT stricture of the pylorus may be caused by the contraction of a scar left by an ulcer that has healed or it may arise independently, without any evidence of ulceration or inflammation, from what appears to be fibroid degeneration of the circular muscle that surrounds it. With the former of these I am not concerned at present. The latter, however, I have met with so often of late that unless I have happened to have come across one of those exceptional series of cases which sometimes occur to everyone I cannot help thinking that it is much more common, and therefore more important, than is usually believed.

Before proceeding further, however, it is necessary to define what constitutes a stricture of the pylorus and to form some idea as to what may be the real size and the distensibility of the opening during life. With this object in view, for some time past whenever I have had occasion to open the abdomen for the purpose of operating upon the stomach I have made it a practice to examine the pylorus as thoroughly as I could. The description in the ordinary textbooks is no doubt accurate, so far as it goes, but it is founded on the examination of cases after death and it is reasonable to think that the condition post mortem, no matter how soon the examination is made, is not the same that it is during life. The circumstances are not the same. Not only have the changes that set in post mortem to be taken into consideration but there is the loss of the tonic contraction which is present during life and which does not entirely disappear from involuntary muscles, even when the reflexes are abolished. All cases in which there was obvious disease, such as ulceration or a cicatrix or malignant growth, either at the pylorus or close to it, were placed upon one side and only those recorded in which the pylorus appeared to present no gross change. The patients were under complete anæsthesia, with the voluntary muscles of the abdomen relaxed, and the stomach had been emptied in all of them.

The method adopted was naturally not a very elaborate one. The pylorus in each case was carefully felt from the outside to ascertain if there was any hardness or irregularity, and then while it was fixed with the left hand the index finger of the right was made to invaginate the wall of the stomach some way off and was pressed against, or where it was possible without using undue force pushed into, the pylorus. In this way a rough idea could be formed of the size of the opening (under these conditions) and the degree of resistance which it presented. In those cases in which the stomach was opened the examination was afterwards completed with the finger in the interior.

Under ordinary conditions the site of the pylorus is marked by a narrow transverse groove, slightly paler in colour than the rest. The pylorus itself is firm, almost hard to the touch, the line of transition being more sharply marked on the intestinal side than on that of the stomach. When grasped between the finger and thumb it often gives the sensation of being nodular and irregular even when there is no disease. This is probably due to irregular muscular contraction, perhaps caused by exposure or by the examination, for it is much less distinct when the finger is passed into the opening. From the interior of the stomach the pylorus feels like a round opening with well-defined edges which just admits the tip of the forefinger. So long as it is normal it yields readily to pressure and there is no difficulty in making the finger, with the wall of the stomach covering it, enter sufficiently far to make sure that the opening is free and soft.

Leaving on one side all cases in which there was some gross lesion, I found that the size of the pylorus varied from that of a channel which could easily admit three fingers with the invaginated wall of the stomach around them to that of a tiny orifice which could scarcely be felt. The former was in a patient who was suffering from general enteroptosis. Probably this extreme dilatation was due to the same causes which produced the enteroptosis. The pylorus was so indefinite that it was difficult to find. The sphincter could scarcely be felt, and the stomach and intestine seemed to form one continuous canal without a break. The latter was undoubtedly a case of stenosis, as the muscular coat of the stomach was in a state of hypertrophy, and the stomach during life had been seen and felt to contract through the abdominal wall; but there was no evidence of any scar, and the pylorus, when felt from the outside, did not present any marked degree of irregularity. Between these two I have met with every grade.

The degree of distensibility was no less variable. Normally the muscular tone of the pylorus yields at once to gentle pressure. But in many of these, even in those in which the orifice was not exceptionally small, the pylorus was so hard and rigid that though it might have been torn it would not stretch. When examined from the serous surface there was nothing obviously wrong. The pylorus appeared to be firm, but it was uniform and not particularly enlarged or contracted. On trying, however, to press the finger into it, it resisted in such a fashion as to leave no doubt that, though there was no evidence of a scar or old ulcer, it was the seat of fibrous stricture.

I have recently met with no less than seven cases, all with a strong family resemblance to each other, in which the hardness and rigidity of the opening were such as to merit the title of stricture and in which there was no sign of a scar. The size varied. In one the opening could not be felt at all. On inspection from the interior it was so small that it would scarcely admit a probe. In the others the diameter appeared to range from an eighth to a quarter of an inch, but in all alike it was absolutely rigid. When the finger was pressed against it, it was a circular opening in a tense membrane and it would not yield to any reasonable degree of force. There were no adhesions, nor was there any thickening of the peritoneal covering or any other evidence of inflammation or ulceration. It simply seemed as if the circular muscular fibre had disappeared and had been replaced by tough and unyielding fibrous tissue. In one, in which the opening was very small, the walls of the stomach were considerably thickened and the size of the organ appeared to be about the normal. In the others the stomach was distinctly enlarged and the walls did not appear to be materially changed. I do not attach much importance to this, however, as it is very difficult to judge of the thickness of the walls, and it is not unreasonable to think that both the size of the stomach and the apparent thickness of its walls may be considerably influenced by the condition of the patient and of the stomach immediately before the administration of the anæsthetic.

Six of these patients were women; one was a man. All had been sent to me with the diagnosis of suspected gastric ulcer. In each the chief symptom had been epigastric pain, more or less griping in character, coming on some time after food was taken, not immediately, and continuing for hours with varying severity. It was due, no doubt, to stomachic colic, as in one or two the contraction of the stomach could be seen or felt to coincide with the waves of pain. Emptying the stomach always gave relief, but vomiting was not an early or a prominent symptom unless the patient induced it voluntarily. Superficial tenderness was present in all in the upper epigastric region. Deep tenderness was either absent or very ill defined. In five there had never been

[2] That of a Malayan bear.

hæmatemesis. In the other two there had been some, but it had not been a prominent feature. It had only appeared late in the course of the complaint and was not serious in quantity. I looked upon it rather as a consequence of the vomiting. Melæna had not been noted. The onset in all had been very gradual. It was not possible to fix even an approximate date for the beginning. There was a history of long-continued dyspepsia and there were no symptoms sufficiently defined to mark the transition from simple indigestion to a severe degree of pyloric stenosis. In all there was the suspicion of gastric ulcer and at the operation no trace of ulceration or of the cicatrix left by an ulcer could be found either on the serous or the mucous surface.

Whatever may be the pathology of this affection, it is clear that the muscular fibre of the pylorus has disappeared to a great extent and been replaced by tough and unyielding fibrous tissue. The serous coat is not involved and there is no evidence of inflammation. There may have been a stage of muscular hypertrophy preceding this, but there was nothing to suggest it in any of my cases. The most probable explanation is that the fibrous degeneration is the outcome of long-continued spasmodic contraction, caused by persistent dyspepsia. In the earlier period if the cause is removed before the degeneration has advanced too far cure may be possible without operation. These are probably the cases in which systematic lavage succeeds. But when that stage is reached in which the pylorus is so rigid that it does not yield to any reasonable degree of force spontaneous recovery is most unlikely. Fortunately gastro-enterostomy, especially that modification described by Finney, can be relied upon to effect a permanent cure with the minimum of risk. I performed it in all of these with the very best result. The pain disappeared. The patients improved in weight and strength, and so long as they took reasonable care they were enabled to lead their ordinary lives and live on ordinary diet.

The question of the time for surgical treatment, therefore, turns upon the stage the fibroid degeneration has reached. Up to a certain point, if the cause that maintains the spasmodic contraction is removed, absorption may take place and the opening regain its elasticity. Beyond that point, whether the cause is removed or not, absorption can do nothing unless it is assisted in some way. The contraction merely becomes tighter. Unhappily the change is so insidious that, as in all my cases, no definite date could be assigned. But it may be taken as fairly certain, if a case is watched for any length of time, that if the dyspepsia returns again and again after apparent cure, and the stomach shows signs of increasing size, especially if at the same time there is evidence that the muscular coat is capable of work, there must be some form of pyloric obstruction and if this does not soon yield to lavage it is better that the patient should have gastro-enterostomy performed than that he should be allowed to continue in a state of constant pain, steadily deteriorating in health and strength.

There is one caution that must be observed. Gastro-enterostomy effects such marvellous results in these cases, that patients, unless they are warned beforehand, are liable to expect too much from it. They are apt to think that they can do what they like and eat what they like, as they did before the operation, forgetting the consequences that followed. It is essential that they should understand what gastro-enterostomy is and what it is intended to do. So far as the difficulty is a mechanical one, to be treated by mechanical means, gastro-enterostomy can be relied upon to effect a cure. It does not treat, or pretend to treat, the condition which preceded the stenosis, and which may continue after the stenosis has been divided. There will not be so much pain, it is true. Such acute attacks of stomachic colic are no longer possible after the contracted sphincter has been divided, and this is one of the great advantages of Finney's method over others. But if the conditions of living which gave rise to the dyspepsia at the first, when the stomach was still perfectly healthy, are allowed to continue, they will give rise to the same results, so far as they can, after gastro-enterostomy has been performed. For want of being cautioned about this patients are sometimes disappointed with the results of gastro-enterostomy. They think that the operation will cure the condition which gave rise to the stenosis as thoroughly as it cures the stenosis itself. I have known several instances in which patients have come back some months after the operation, declaring in spite of their greatly improved appearance and strength, that they were as bad as they were before the operation. It is my invariable rule in such cases to put them to bed, to get the bowels to act thoroughly well, and to restrict them to milk diet for a day or two; and I have never known a case in which the pain did not disappear immediately and recovery follow at once.

Wimpole-street, W.

A CASE OF ABNORMAL DEVELOPMENT OF THE ŒSOPHAGUS.

BY J. E. SPICER, M.A., M.B., B.C. CANTAB.,
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DURING the last 18 months three similar cases of congenital malformation of the œsophagus have been admitted to the London Hospital. The anatomical characteristics of two of them, as well as of previously reported cases, have recently been described by Dr. Arthur Keith and myself.[1] The following case has occurred since and has not yet been recorded. I am indebted to Mr. Jonathan Hutchinson, jun., for permission to publish it.

The abnormality is identical with that of the other cases and can be seen in the accompanying diagrams. It is due to maldevelopment of the tracheo-œsophageal septum in the anterior part of the primitive œsophagus. As a result the upper part of the œsophagus is found to end in a dilated cul de sac, while the lower opens above into the posterior wall of the trachea immediately above the bifurcation. The history of the case is as follows.

The patient, a full-term female child of 7½ pounds in weight, was admitted to the London Hospital a few hours after birth the subject of imperforate anus. There were no other external abnormalities. The child was operated on but the rectum could not be found. The patient died 22 hours after birth. She was the tenth child and, with the exception of a short umbilical cord which delayed delivery, the birth was natural. The preceding child was described

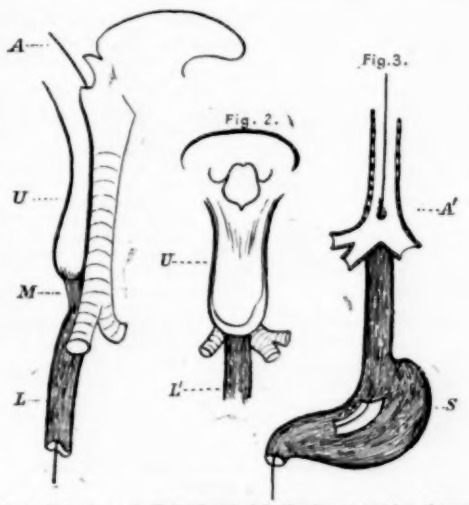

Fig. 1. Side view.—A, Probe inserted in the larynx passing through the trachea into the œsophagus. U, Upper end of the œsophagus, ending in cul-de-sac. M, Band of muscle fibres and no communicating passage. L, Lower end of the œsophagus.

Fig. 2. Back view.—U, Upper end of the œsophagus, ending in a cul-de sac. L', Lower end of the œsophagus opening above into the trachea.

Fig. 3. Front view.—A', Opening of the œsophagus into the trachea S, Stomach.

by the mother as having been a "blue baby with a hole in its heart" which only lived four hours. Previously to this there had been a miscarriage but the rest of the children are alive and well. There is no apparent abnormality in any of them and the parents are perfectly healthy. One maldevelopment alone is known among the collateral branches

[1] Journal of Anatomy and Physiology, vol. xli., 1906.

of the family; the father's brother has a child with congenital talipes.

On post-mortem examination the following points were noted, besides what has already been described:—1. The right side of the heart was very much larger than the left, and the right auricle was hypertrophied and dilated. 2. No trace of septa in the foramen ovale. 3. The veins from the right lung opened into the left auricle so close to the patent foramen ovale that a large part of the blood probably entered directly into the right auricle. 4. Right and left superior vena cava. 5. No right aortic arch (this was present in the two previous cases). 6 The left ureter showed the presence of a well-marked constriction immediately below the pelvis. 7. Imperforate anus, but the sigmoid well developed. 8. The lungs, intestines, and other organs normal.

It may be interesting to add here, in connexion with this maldevelopment of the œsophagus, that in our earlier cases the children lived respectively six and nine days.

London Hospital, E.

SOME OBSERVATIONS ON FAT NECROSIS.

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DURING two years as pathologist to the General Hospital, Birmingham, I performed eight post-mortem examinations in which fat necrosis had occurred. As probably few medical men can have had the opportunity of observing on so many occasions this interesting condition it seems to me desirable to describe the appearances which were found and to record the results of the microscopical, chemical, and bacteriological examinations which were made in these cases. Three of the cases mentioned in this paper have been published already in various medical journals and they are included in the following list:—

Case.	Age.	Sex.	Disease.	Under the care of—	Where published.	Date of death.
1	43	F.	Acute hæmorrhagic pancreatitis.	Mr. F. Barnes.	Queen's Medical Magazine, vol. ix., p. 72.	August, 1905.
2	41	M.	,,	Mr. G. Heaton.	—	May, 1905.
3	48	M.	,,	,,	British Medical Journal, vol. ii., 1904, p. 1637.	October, 1904.
4	47	M.	Subacute pancreatitis.	Mr. H. G. Barling.	—	February, 19.6.
5	54	F.	,,	,,	—	June, 1906.
6	59 (?)	M	Gangrenous pancreatitis.	,,	British Medical Journal, vol. i., 1906, p. 438.	October, 19.5.
7	45	M.	Hydrochloric acid poisoning.	Dr. R. Saundby.	—	November, 1905.
8	15	F.	Mitral disease.	Dr. J. W. Russell.	—	August, 1906.

Fat necrosis is generally considered to be the result of the action of the fat-splitting ferment of the pancreas upon living adipose tissue. The fat in the cells is split up into fatty acids and glycerine by the action of the ferment; the glycerine is absorbed and the fatty acids which remain combine with the calcium salts and so form a soap. The fat-necrotic areas vary in appearance according to their situation. When they lie just under the peritoneum they appear as small round white spots which are from two to five millimetres in diameter. These are the characteristic spots which are seen when a laparotomy is performed by the surgeon. The spots are rarely larger than the size mentioned above, but masses of fat necrosis are often found which consist of many of these areas situated so close together that they are in apposition. The points of necrosis under the peritoneum are never raised above the surface but can just be felt when the finger is passed over them because they are of firmer consistence than the tissues in which they are situated. They are dull white in colour, but sometimes they are light yellow at the post-mortem examination from being stained with bile. These small spots appear under the peritoneum and sometimes under the parietal pleura and the parietal serous membrane of the pericardium. If one of these spots just under the peritoneum be cut in half it is seen that the whole of the affected portion is of the shape of a split pea, with the flat surface towards the peritoneum. When the spots are situated deeper in the subperitoneal fat they are usually spherical in shape but are about the same as to size except when the fat necrosis is in the retro-peritoneal tissue. In the great omentum there were only these small spots and no large masses in my series. The peritoneum over the stomach may also be affected, but it is uncommon to find the necrotic areas over the small intestines, although over the large intestines they are frequently present. In the root of the mesentery and in the subperitoneal fat over the pancreas and the kidneys there are seen large masses of fat necrosis which seem often to have been formed by the direct spreading of the necrotic changes from the pancreas into the tissues around. Sometimes these large masses seem to be the result of small areas of fat necrosis situated close together. In the pancreas there is commonly seen fat necrosis in the interstitial tissue of the organ. The fat necrosis is often present in large masses in the fat behind the kidneys and pancreas and may be found anywhere in the retro-peritoneal fat.

The ages of the patients in the first five of my series is a point worthy of notice. The ages of those suffering from acute hæmorrhagic and subacute pancreatitis ranged from 41 to 54 years, and their ages correspond with what is generally recognised to be the usual time of life in which these diseases of the pancreas occur. Case 6 was stated to be 59 years old, but when seen by me he did not appear to be more than 45 years, so that there may have been a mistake in the record of his age.

It is a very remarkable fact that in the last two cases of my series the fat necrosis was not found associated with any primary disease of the pancreas, but occurred as a result of hydrochloric acid poisoning in one case and in mitral disease in the other.

I do not propose to give a complete account of all the eight cases but only to describe the distribution and the appearance of the fat necrosis and the changes which were found in the pancreas at the post-mortem examinations.

CASE 1. *Acute hæmorrhagic pancreatitis.*—Total duration of the illness, seven days; operation on the second day. The peritoneum was quite dry. There were points of fat necrosis in the subperitoneal fat all over the abdomen. These varied in size from that of a pin's head to that of a pea. Some were stained with bile and had a bright canary-yellow colour. The fat-necrotic areas were situated not only under the peritoneum but also deeply in the subperitoneal fat. These areas were most numerous in the subperitoneal fat lining the anterior abdominal wall and in the great omentum. There were very few in the mesentery of the small intestines and none over the intestines themselves. The peritoneum was swollen and easily stripped off the intestines. In the lesser sac and in connexion with the tail of the pancreas there was a cyst which contained a fluid having the appearance of water. The fluid had a slightly proteolytic action and a markedly amylolytic action. It curdled milk and had a fat splitting ferment. There were large masses of fat necrosis around the pancreas and also small points in the substance of the organ. Portions of the pancreas looked quite healthy and had their normal lobulation, while other portions were disintegrated and hæmorrhage had occurred in them. No calculi and no obstruction to the pancreatic duct were found. Some of the veins were thrombosed. The common bile-duct was patent. In the parietal pleura on the left side there was a small area of about the size of a shilling in which there were a few points of fat necrosis. It was situated over the vertebral column and just above the attachment of the diaphragm and below the level of the lung.

CASE 2. *Acute hæmorrhagic pancreatitis.*—There was a little blood-stained fluid in the pelvis. Large masses of fat necrosis were present at the root of the mesentery and two small patches in the great omentum. There was no fat necrosis under the parietal peritoneum. Fat-necrotic areas were also found in the transverse mesocolon and in the lesser omentum. There was a considerable amount of fat necrosis in and around the pancreas. The fat necrosis seemed to commence around the pancreas and to radiate from it in the subperitoneal fat, only

a few outlying patches being present and these not more than one inch from the main mass. The fat around the left kidney showed areas of fat necrosis and this was most marked behind the organ. The pancreas was very large and contained numerous hæmorrhages. The tail of the pancreas appeared normal. Many of the veins in the pancreas were thrombosed. No calculi were found and the pancreatic duct could not be properly dissected out. The tissues around the head of the pancreas, and especially behind it, were infiltrated with blood. The common bile-duct was patent and there were no gall-stones. The stomach contained blood.

CASE 3. *Acute hæmorrhagic pancreatitis.*—Total duration of illness, four days; operation 36 hours before death. The peritoneum contained three ounces of blood-stained fluid. There were small spots of fat necrosis in the mesentery and also in the subperitoneal fat in the anterior abdominal wall. There were large masses of fat necrosis in the fat around the pancreas and in the ascending mesocolon. Small hæmorrhages were present in the fat around the pancreas and at the root of the mesentery. The pancreas was very large and formed a large mass extending across the abdomen. There were hæmorrhages on its surface and on section there was seen to be a considerable amount of hæmorrhage into its substance. There were opaque yellow patches of fat necrosis. The tail of the organ appeared healthy. There was no thrombosis of the veins and the duct of Wirsung was normal and did not contain calculi. There was a considerable amount of fat necrosis around the head of the pancreas and also in the peri-renal fat. There were no gall-stones and the common bile-duct was patent.

CASE 4. *Subacute pancreatitis.*—Duration of illness, between three and four weeks; attacks of abdominal pain for two years; operation two days before death. About two feet of the small intestines were very dark in colour and looked gangrenous. The mesentery of this portion was swollen and engorged with blood. The gangrene of the bowel was due to thrombosis of a large branch of the superior mesenteric vein, produced by an extension of the inflammation around the pancreas. There was no fat necrosis under the peritoneum of the larger sac, but there were large areas in the subperitoneal fat over the pancreas. The head of the pancreas was greatly swollen and somewhat hardened and the fat around was very fibrous. There were some small hæmorrhages in the organ and large areas of fat necrosis were present. There were no large gangrenous portions. The blood in the portal vein was fluid, but there was a thrombus on one side of the lumen which had spread up from below. The gall-bladder had been opened by an operation previously and its walls had contracted down and were thickened The common bile duct was patent.

CASE 5. *Subacute pancreatitis.*—Duration of illness about three weeks; operation eight days before death. A large amount of fat necrosis had occurred in the edges of the laparotomy wound. There was a little blood-stained fluid in the peritoneum. Numerous areas of fat necrosis were seen all over the peritoneum and some of them were situated very deeply in the subperitoneal fat. They varied in size from that of a pin's head to that of a pea. The spots were most numerous in the great omentum and around the spleen; there were very few in the mesentery of the small intestines. There were large masses in the fat around the kidneys and also small foci in the fat behind the sigmoid flexure and in front of the psoas muscle. There was a large tumour in the region of the pancreas; on cutting through the peritoneum over it a thick fluid exuded which had the appearance and consistency of anchovy sauce. There was a considerable amount of fat necrosis around the pancreas, especially at its tail. At the surgical operation an opening had been made into the fat necrosis below the pancreas and another into the head of the organ. A small portion of the head of the pancreas was gangrenous, while the tail showed the normal lobulation. There were hæmorrhages in the organ around the gangrenous portion. The pancreatic duct was not found and a probe could not be passed into it from the duodenum. There were no calculi. Numerous small points of fat necrosis were found under the parietal pleura on the left side. They were situated on the posterior and lateral aspects of the pleura and in its lower half; none were in front of the anterior axillary line.

CASE 6 *Gangrenous pancreatitis.*—Duration of illness between six and seven weeks; operation three weeks before death. There was suppurative peritonitis, with numerous points of fat necrosis. These were most marked in the great omentum, varying in size, some being as large as a split pea. The fat necrosis was also seen in the mesentery and in the subperitoneal fat of the abdominal wall. There were no deeply situated areas of necrosis in the subperitoneal fat. All the pancreas was gangrenous except for a small portion at the tail. There was an abscess around the head of the pancreas and in it were large masses of necrosed pancreatic tissue. A considerable amount of fat necrosis had occurred in the fat around the pancreas. In some places there were large masses of it. A probe could not be passed into the pancreatic duct. The gall-bladder was considerably distended and a probe could not be passed from the gall-bladder into the common bile-duct; the latter had been in contact with the abscess and had probably been obstructed by inflammatory changes.

CASE 7. *Fat necrosis after hydrochloric acid poisoning.*—The patient, a man, aged 45 years, was admitted into the General Hospital, Birmingham, in November, 1905, for hydrochloric acid poisoning, under the care of Dr. R. Saundby. On admission the man was very collapsed and died within 24 hours. He was apparently quite well before taking the corrosive poison. At the post-mortem examination there were no signs of corrosion around the lips and no stains or burns on the face. There was no corrosion of the tongue and fauces. Throughout the entire length of the œsophagus there were greyish patches on the mucous membrane. In the stomach the corrosion was extensive and deep. There was charring along the ridges, but there was no perforation. The peritoneum over the stomach was injected. There were acute inflammatory changes in the duodenum and for about the first 12 inches of the jejunum. The pancreas seemed to be normal in size and showed the usual lobulation. There were large areas of fat necrosis on the surface of the pancreas and also in its substance. There was no fat necrosis beyond the region of the pancreas. The pancreatic duct was obstructed by the inflammatory changes. The gall-bladder and common bile-duct were normal. The microscopical examination of the necrotic areas showed that the adipose tissue was replaced by a granular mass, which stained yellow with picro-fuchsin. There were no inflammatory changes around the fat necrosis. The pancreas itself appeared normal.

CASE 8. *Fat necrosis in a case of mitral disease.*—The patient, a female, aged 15 years, was admitted to the General Hospital, Birmingham, in August, 1906, for heart disease and was under the care of Dr. J. W. Russell. There was nothing in the history of the symptoms of the malady which made it appear any different from an ordinary case of mitral disease with failure of compensation. At the post-mortem examination it was noticed that there were general œdema and a slight tinge of jaundice. The heart showed extensive mitral disease, with vegetations on the valve and thickened chordæ tendineæ. The left ventricle was dilated and there was marked fatty degeneration of the cardiac muscle. The pericardium was adherent all over the heart. The peritoneum contained 25 ounces of clear fluid. There were many infarcts in the kidneys and spleen; some of them were old, but many were quite recent. There were many small spots of fat necrosis to be seen on the surface of the pancreas and also a few in the substance of the organ. There were a few points of fat necrosis in the root of the mesentery. The pancreatic duct appeared patent. There were no calculi. The liver showed passive hyperæmia and the gall-bladder was distended. The microscopical examination of the pancreas showed that the areas of fat necrosis were similar to those found in the cases of pancreatitis described in this paper. There were small portions of necrosis of the glandular tissue, but no thrombosis of vessels could be made out.

On two occasions I have attempted to make a chemical analysis of the patches of fat necrosis and have found it very difficult. In Case 5, however, an analysis was made by Mr. J. A. Barnes, B.Sc., A.I.C., and the following is his report: "There is no adipocere present and the spots consist of the calcium salts of a mixture of fatty acids, superfatted. There is no glycerine, leucin, tyrosin, or any other amido-acid present; consequently they are not due to proteid decomposition. The composition of the fatty acids I have been unable to determine on account of the small quantity of material at my disposal."

In only one case was a bacteriological examination of the fat necrotic patches made by culture. The examination was performed with great care and these areas were found to be

sterile. Microscopical sections of the areas in other cases never showed any micro-organisms. In some of the cases bacteriological examinations of the fluids from the cysts, of the peritoneum, and of the pancreas were attempted. The bacillus coli communis was invariably found, together with other micro-organisms, but the examination presented so many difficulties that it was not pursued further.

Microscopical examination of the areas of fat necrosis showed that the adipose tissue was simply replaced by a granular material which coloured deeply with various stains. The outline of the cells in which the fat had undergone the necrotic change could easily be made out. There were no inflammatory changes seen around the areas and no micro-organisms were ever found. The microscopical appearance presented in the pancreas varied considerably in different portions of the same gland. In places the organ was quite disorganised and no glandular structure could be made out. Some areas of necrotic parenchymatous tissue were seen, some large and others very small. In other places the pancreas appeared quite normal or only showed cloudy swelling, while in others there were acute inflammatory changes in the interstitial tissue. Numerous small hæmorrhages were constantly present.

From a study of the foregoing cases it appears that in some the fat necrosis was more abundant near and around the pancreas than anywhere else. This suggests that the fat necrosis commenced in the immediate neighbourhood of the gland and was the result of the leakage of the pancreatic secretion into the tissues around. That this occurred is supported by the fact that large masses of fat necrosis were often found behind the pancreas and around the kidneys. As a result of disease of the pancreas the fat-splitting ferment may escape directly into the neighbouring tissues, as is suggested above. It may, however, be carried there by the lymphatics. Probably both means of distributing the ferment occur. In other cases the distribution of the points of necrosis all over the peritoneum indicates that the pancreatic juice has escaped into the general peritoneal cavity and that it has acted upon the subperitoneal fat, possibly by gaining access to it through the stomata. Microscopical examination, however, has not demonstrated that stomata are to be found over fat necrotic areas. Fat necrosis was found in Case 5 in the edges of the laparotomy wound and this was without doubt caused by the ferment in the general peritoneal cavity escaping from it rather than that the ferment was carried to the wound by the lymphatics. It it easy to understand how the fat-splitting ferment may escape into the tissues around the pancreas and even into the peritoneal cavity when there is destruction of the gland, as in acute hæmorrhagic, subacute, and gangrenous pancreatitis. So also may it escape in disorganisation of the pancreas by the action of a corrosive poison. But it is difficult to explain this escape in a case of heart disease. Even in Case 7, in which the necrosis followed hydrochloric acid poisoning, there seemed to be very little, if any, damage of the pancreas. It does not seem possible for the escape of the fat-splitting ferment to be produced by simple catarrhal obstruction of the pancreatic duct, for otherwise fat necrosis would occur very much more frequently than is the case. In catarrhal jaundice there would be reason to expect an obstruction in the pancreatic duct as well as in the common bile duct, but it is obvious that if this occur the fat-splitting ferment cannot be commonly absorbed by the lymphatics, as the bile is in obstruction of the common bile duct, for otherwise fat necrosis would be a much more usual event in practice. To produce fat necrosis it seems therefore that something more is required than merely obstruction in the pancreatic duct; it seems that some destruction of the pancreatic tissue is also necessary.

In Case 7 the fat necrosis was probably due to the damage or injury of the pancreas by the corrosive poison, although any change in the organ was not very obvious, and not to the obstruction in the pancreatic duct, although such obstruction may have contributed to the escape of the fat-splitting ferment. In Case 8 there may have been some catarrhal obstruction of the pancreatic duct as there was slight jaundice. Small areas of necrosis of the parenchymatous tissue of the pancreas, however, could be demonstrated. It is hardly possible that the fat necrosis which was found in the pancreas was merely a post-mortem change. The explanation of the presence of fat necrosis in this case would seem to be that multiple emboli had occurred and produced necrosis of the parenchymatous tissue of the pancreas with a subsequent escape of the fat-splitting ferment.

Although some destruction of the pancreatic tissue seems to be a necessary factor in the production of fat necrosis, yet in cases of extensive disease of the pancreas fat necrosis does not always occur, as was shown by a case on which I performed a post-mortem examination for Mr. L. P. Gamgee in October, 1904. The patient was aged 32 years, and there was an abscess in the head of the pancreas containing three ounces of thick pus. He had received a violent blow in the centre of the abdomen from the shaft of a cart, and there is no doubt that the pancreas was injured at the time. A large portion of the pancreas was gangrenous and the case appeared a typical one for the occurrence of fat necrosis, but none was found. The patient died 11 days after the accident.[1]

Eppinger[2] has suggested that the areas of fat necrosis are infarcts arising by the displacement of small portions of pancreatic tissue along the path of the lymphatics and that this tissue contains "activated" pancreatic ferment. There are three points in my cases which seem to oppose this view—namely, (1) the areas of fat necrosis are sometimes seen just under the peritoneum and nowhere else, except in the immediate neighbourhood of the pancreas, indicating that the ferment had escaped into the general peritoneal cavity; (2) the fat necrosis was observed in the edges of a laparotomy wound; and (3) the radiating appearance of the fat necrosis in one of the cases seems to point to direct extension from the pancreas.

My thanks are due to Dr. Saundby, Dr. Russell, Mr. Barling, Mr. Heaton, Mr. Gamgee, and Mr. Barnes for their kind permission to make use of their cases in this paper.

Birmingham.

NOTES ON A CASE OF DISSEMINATED SCLEROSIS.

BY Z. MENNELL, M.B. LOND., M.R.C.S. ENG., L.R.C.P. LOND.

DISSEMINATED sclerosis is frequently seen in its early stages at the hospitals and in its later stages in the infirmaries but is comparatively rarely seen in private practice throughout its whole course by the same observer; hence I venture to publish the following brief notes of a case which I had under my care from a very early stage up to the patient's death. In the course of her illness she showed a great many of the symptoms accredited to this disease and some which I have not been able to find described.

Early in November, 1902, I was called one evening to see a girl in a "nervous fit." The patient, aged 20 years, had a bad family history, being the illegitimate daughter of a man who had undoubtedly had syphilis and who died, when the girl was 16 years old, from general paralysis of the insane, and of a woman who was a dipsomaniac. Her previous history showed nothing of importance, except that her education had been somewhat neglected. Her father left her well provided for. She herself was a girl of medium height, rather inclined to be fat, and fairly intelligent; she had been suffering from attacks of giddiness which had culminated in the fit for which I was called. When I arrived the fit was just over. The girl was lying on a bed complaining of having fallen and bruised her leg; she was rather excited and showed no signs of any disease other than slight lateral nystagmus and increased reflexes of the legs which led me to make a provisional diagnosis of disseminated sclerosis. A few days later, after using a mydriatic, I found that both optic discs were distinctly pale on the temporal side. There was also marked dorsiflexion of the great toes in response to plantar stimulation. From this time until her death in September, 1906, I saw her constantly, the symptoms being progressive.

The patient was quite intolerant of iodides, so late in December, 1902, mercurial inunction was tried for two months. In February, 1903, without any warning she was suddenly sick and had an apoplectiform seizure. She had conjugate deviation of the head and eyes to the right, her pupils were dilated, her face was flushed, and she had stertorous breathing. In this condition she was carried to bed where she remained unconscious for some hours, not responding to any external stimuli. After this attack the

[1] Brit. Med. Jour., vol. ii., 1904, p. 1637.

[2] Zeitschrift für Experimentelle Pathologie und Therapie, Band ii. Heft 2.

nystagmus became much more marked and a decided intention tremor appeared on the right side only, with right-sided patellar and ankle clonus. A very brisk jaw-jerk was obtainable at this time and her speech became altered. For six weeks after this attack she was confined to bed owing to weakness of the right leg. There was a considerable amount of fluid effusion in both the right knee and ankle-joints, which were, however, painless. Incontinence of urine first commenced at this time, intermittently at first but later becoming complete. While in bed during this six weeks the temperature varied up to 102·4° F., and on several occasions there was a difference of four degrees in 12 hours. An interesting feature at this time was the presence of an urticarial rash which extended all over the body, varying in distribution and degree from hour to hour; it lasted off and on for three months and towards the end of February clear bullæ appeared which, when broken, left clean, raw, moist surfaces. They developed chiefly on the hands and feet. The only drugs she was taking at this time were simple aperients and occasionally small doses of bromides. Whether the urticarial and bullous eruption should be attributed to these or to abnormal vaso-motor changes dependent on her disease I do not know. In the following April she improved and was allowed out of bed; she gradually gained strength in the right leg until she was able to get from the bed to the chair unassisted. The speech that month became much worse and very slurring, but could hardly be described as "staccato."

At the end of April another seizure occurred, preceded by a fall of temperature. Twitching commenced in the right side of the face and the right arm and leg; speech became unintelligible and wandering and the patient gradually passed into a semi-comatose condition, with clonic spasm of the right arm and leg, which lasted for several days but gradually disappeared with return of consciousness. The pupils varied in size, continually altering from hour to hour, at one visit the right being the larger, at the next the left. Lateral nystagmus at that period was a constant feature. On the return of consciousness after this attack she was found to be suffering from complete motor aphasia. Sensory aphasia was either absent or slight and transient, for within about four days from the return of consciousness she could comprehend what was said to her, but it was some days later before she could herself speak, and then for a time she only answered "Yes" to questions put to her, but she would do anything she was told to. Her speech gradually improved and it was then found that there were hyperæsthesia of the right leg and almost complete anæsthesia and analgesia of the left which persisted for many months. Incontinence of urine was continual and in May cystitis appeared but readily yielded to treatment.

In the following September the condition had improved so much that I find a note to the effect that she was out of bed again and having her meals with her friends in the dining-room, to which she had walked with the assistance of both her nurses. Her writing was shaky but clear; she took an intelligent interest in the illustrated papers and played "Patience," of which she was very fond. At the end of October, after another attack, she became bedridden and her symptoms increased in severity. Speech became so bad as to be unintelligible; nystagmus was always present, the spasticity of the legs became worse, and contractures developed. Intention tremor was so marked that she had to be fed and the incontinence of both urine and fæces gradually became complete.

From October, 1903, to March, 1905, numerous attacks of a similar apoplectiform nature occurred, after each of which she passed into a comatose state with Cheyne-Stokes respiration for some days. In March, after an attack she became speechless, but noisy, and appeared to be in pain. After several days a large ischio-rectal abscess was discovered and opened. In April she became very lethargic and could not be made to understand anything said to her. She understood, however, to a certain extent, what was going on around her, and would, for instance, help her nurses when washing her. The next month, notwithstanding excellent nursing and a water-bed, a large bed-sore formed on the left hip, followed by an abscess of the buttock, which necessitated very extensive opening and draining with tubes. At that time, too, numerous crepitations were found at the bases of both lungs, and the respiration rate was frequently 30 per minute. The abscess slowly healed and the chest signs disappeared, but from June, 1905, onward, the girl never regained consciousness, hardly ever moving in bed.

During the last 18 months of life it was only with great difficulty and with the occasional help of a nasal tube that her food, which consisted of milk, meat juice, &c., could be given her. She simply lay in bed on her back with her hips and knees flexed and rotated to the right side, her arms flexed and pressed so tightly on her chest as to necessitate her thorax being protected with Gamgee tissue to prevent pressure ulcers. Her legs showed marked emaciation and wasting of muscles, but the rest of her body, with the exception of the hands, remained fairly nourished. In the hands atrophy appeared first in the thenar and hypothenar eminences, and then extended to the interossei; fibrillary contractions were constantly present in the forearm muscles. The tongue, too, showed signs of atrophy. The reflexes slowly disappeared, both superficial and deep, until even the corneal reflex could not be elicited. The pupils towards the end became small and equal, but they always reacted to light. The apoplectiform attacks continued and became even more severe in character, leaving the patient collapsed, pulseless at the wrist, and cyanosed; they were almost always preceded by a fall in temperature, so that the nurses were able to predict the occurrence of a fit. These attacks were followed by twitchings and spasms chiefly of the right arm and leg, so severe as to shake the bed. These would continue for hours and were accompanied at intervals by a short, sharp, piercing cry which could only be compared with the meningeal cry. They were, to a certain extent, controlled by hypodermic injections of morphine, which had to be given in increasing doses. I am inclined to think that the morphine diminished the number of the attacks. Bromides, even in large doses, had no effect.

Respiration for many months was of the Cheyne-Stokes type, and, at the height of the cycle, when respirations were most active, she frequently uttered this cry, at times so loudly as to provoke complaints from the tenants in the neighbouring flats. The pulse was usually rapid and irregular and at times was imperceptible at the wrist. After the subsidence of an attack, cyanosis, coldness, weak respiration, and feeble cardiac action were so marked that death was often thought to be imminent, and when, after a series of fits lasting for 48 hours, with a gradual rise of temperature to 106°, death did occur on Sept. 5th, 1906, the patient looked no worse than she had done on previous occasions.

The sequence of the classical symptoms of this disease was remarkable, as was also the temperature, which was never what could be considered normal for longer than 24 hours, from February, 1903, to September, 1905. The apoplectiform attacks were exactly like true apoplexy, followed by right-sided hemiplegia, and, at first, speech disturbance, but the paralysis was transitory. No post-mortem examination could be obtained.

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DIPHTHERITIC MEMBRANE INVOLVING THE PHARYNX, ŒSOPHAGUS, AND RESPIRATORY PASSAGES.

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INVASION of the œsophagus by diphtheritic membrane seldom occurs even when there is extensive involvement of the pharynx or respiratory passages. Holt reported on 109 cases of diphtheria and Lennox Browne on 1000 in which there is no mention of membrane in the œsophagus. Councilman, Mallory, and Pearce have placed on record 12 cases out of 220 examined post mortem in which the œsophagus was part of a general involvement, and Sir Morell Mackenzie mentions cases recorded by other writers and two cases coming under his own observation. The only recent cases of membrane extending to and involving the œsophagus are those recorded by Dr. E. W. Goodall,[1] Dr. E. Cautley,[2] and Dr. John Fawcett.[3]

A man, aged 37 years, was admitted to the North-Western Fever Hospital, Hampstead, on the evening of Oct. 9th, 1906, complaining of headache and sore throat. He had had

[1] Transactions of the Pathological Society of London, vol. xlvii.
[2] Reports of the Society for the Study of Diseases in Children, 1902-03, vol. iii.
[3] Transactions of the Pathological Society of London, vol. lvii.

no previous illnesses. His surroundings both at home and at work were good—the patient occupying a good social position. A history of alcoholic excess, extending over many years, was obtained. His illness began on Oct. 5th, when he complained of headache and sore throat. His constitutional symptoms on that day were so slight that he did not think his condition warranted his having medical advice. On the following day (the 6th) the patient suffered from chilliness, and this in addition to his other symptoms necessitated his remaining indoors. On the 7th he had attacks of nausea and vomiting. His throat caused him more discomfort and constitutional disturbance was a marked feature. Two days later (the 9th) he received medical attention and was sent to hospital. His state on admission was as follows. The face and lips were cyanosed and the tongue was coated. The soft palate, uvula, tonsils, and the pillars of the fauces were much swollen. Membrane, thin, friable and fibrinous, covered the uvula, both tonsils, and the posterior pharyngeal wall. The cervical lymph glands were slightly enlarged. The temperature was 101·6° F. and the pulse was 88, small, and irregular. The urine contained a large quantity of albumin. Breathing was difficult and hurried and dulness extended over the lower lobes of both lungs. Swallowing was difficult and painful. During the night of the 9th the patient became restless and delirious. On the following morning he had an attack of vomiting and a tube of membrane was brought up. Breathing, however, was not relieved, but swallowing became less difficult. Later, he became more restless and delirious. His pulse varied from 100 to 120 and became more irregular. Respiration increased in frequency and cyanosis was a marked feature. As regards treatment, the patient was given 2000 units of antitoxin a few hours before admission. And on admission another 10,000 units were injected, followed by 12,000 units 12 hours later. Treatment was altogether useless and he died 24 hours after entering the hospital.

Necropsy.—The body was found to be that of a well-developed and muscular man. Rigor mortis was present in both upper and lower extremities, with well-marked general lividity. The tonsils were swollen and ulcerated, and flakes of membrane were present on both. The laryngo-pharynx was covered with dense, tough, yellowish membrane, and traces of membrane were present along the œsophagus to about three centimetres from the cardiac orifice of the stomach. These scattered areas of membrane on the œsophagus were the remains of the cast passed immediately before death, the cast measuring some three to four inches in length. The epithelium of the œsophagus was necrosed and there was congestion of the mucous surface. Membrane covered the valleculæ, the lingual surface of the epiglottis, and the aryteno-epiglottidean folds. The posterior surface of the epiglottis was injected; but the probability is that the membrane there had loosened after antitoxin treatment. The false and true cords and the laryngeal sinus escaped. Beginning immediately below the true cords the membrane continued downwards, completely lined the trachea and larger bronchi, and extended even to some of the minute bronchi. The left lung weighed 33½ ounces and the right 22½ ounces. Areas of broncho-pneumonia of hæmorrhagic variety were scattered throughout both lobes of the left and the lower lobe of the right lung. Areas of collapse were present in both lungs. The left pleura showed traces of past inflammation. The heart weighed 16 ounces. The right chambers and the tricuspid orifice were markedly dilated. There was slight dilation of the mitral orifice, the left ventricle, and the left auricle. There was considerable loss of tone of the organ, and fatty change was marked. Patches of atheroma were present on the ascending aorta. The liver weighed 58 ounces. There were fine cirrhosis and areas of fatty change throughout the substance of the organ. As regards the spleen the Malpighian corpuscles were greatly enlarged and the pulp was somewhat diffluent. Both the kidneys were enlarged. The capsules stripped readily. The glomeruli were enlarged and the venules were dilated. The superficial and interpyramidal cortices were swollen and showed marked fatty change.

Bacteriology.—On admission a swab was taken from the throat and a culture was made on blood serum. The colonies consisted of various varieties of streptococci and staphylococci, but the Klebs-Löffler bacillus was not isolated. A second culture was made from the membrane post mortem and almost a pure growth of the specific bacillus found.

Remarks.—The importance of an early diagnosis in cases of diphtheria cannot be too strongly emphasised. In this case the patient suffered from the disease five days before his case was diagnosed and before he received suitable treatment. 12 hours after antitoxin was given the œsophageal membrane loosened, but toxæmia was too far advanced to allow of efficacious treatment. It is probable that over-indulgence in alcohol contributed largely in lowering the vitality of the tissues and this diminished resistance, together with the delay in treatment, allowed the specific organisms full scope to work their malign influence. Another feature in this case was that even when the membrane had been observed and diphtheria diagnosed the first culture made from the throat gave a negative result. Similar results have often occurred in my experience and when one considers the importance of an early diagnosis it would seem best that in all cases in which diphtheria is suspected at least two separate swabs should be taken on first examination of the throat.

I am greatly indebted to Mr. F. N. Hume for permitting me to record the case.

Note by Mr. HUME.—A remarkable feature in this case was the persistence of phonation. In adults where the air passages are wide the loss of voice is important as an indication of the presence of membrane in the larynx and possibly below it. The absence of laryngeal obstruction without loss of voice may be misleading, but increasingly ineffective inspiration without laryngeal symptoms should be recognised as a sign of bronchial obstruction, its significance rendered more grave by the fact that in such cases of pulmonary suffocation, now of very rare occurrence, tracheotomy is useless. The vocal condition in this case is explained by the freedom, found post mortem, of the vocal cords from membrane.

North-Western Hospital.

SOME LIMITATIONS OF MEDICAL EVIDENCE.[1]

BY STANLEY B. ATKINSON, M.A. CANTAB., M.B., B.SC. LOND., J.P.,

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THE science, the art, and the correct estimation of the value of medical evidence is the province of forensic medicine. It is not impertinent, therefore, to inquire as to what limitations can be and are placed upon the medical man who desires to bear testimony in a court of law as to facts within his personal knowledge. Evidence is the means whereby an alleged matter of fact, the truth of which is being submitted to forensic investigation, is established or disproved. Testimony is such evidence as is given by word of mouth. Usually medical men are skilled common witnesses of fact; often they are asked for opinions inferred from such facts as they narrate. In offering such consequential testimony they must recollect that they are posing as experts; they would be wise in many cases in just stating what they actually found, without drawing a possible conclusion. In such a case John Hunter in 1781 twice told the judge: "I can give nothing definite."

Limitations of medical evidence may arise in two directions—limitations of medical knowledge and limitations imposed by the policy of the law. The former restrictions become fewer with the advance of time, research, and medical education—for men's views narrow with the progress of the -scopes. Limitations imposed by rules of law are enlarged less easily; indeed, modern statutes are notorious for the strictness of their definitions—a strictness which often makes it difficult to bring home wrongdoing to a culprit's door. All definition implies limitation. In this connexion it has been said that in forensic medicine the law leads and medicine follows, whilst in State medicine medicine leads and the law follows.

Limitations of medical knowledge may be relative to the medical witness concerned (self-imposed or enforced), or they may be absolute. Thus the diligence, skill, and knowledge of medical men vary from age to age and from person to person. So variable is this range that a man is expected to treat a patient only to the best of *his* ability and not in the best manner possible by an authority on such matters. Recognising personal limitations, it is wise for all professionals to be on their guard and to risk no disgrace, when in

[1] A paper read before the Medico-Legal Society on Dec. 11th, 1906.

doubt, by a delay in applying to a superior authority at once, be it a senior or better-informed man or a clinical research laboratory. Never, however, must what another has done be given as direct evidence in a court of law. Thus, in 1902, Sir Thomas Stevenson was stopped at the Central Criminal Court, when he wished to testify as to the results of some toxicological examinations which his laboratory assistant had made. Sir William Jenner's advice is pertinent in this connexion: "Never believe what a patient says another doctor said." It is a presumption of the law that all "qualified medical practitioners" are competent professional advisers; this to some extent explains the attitude of the public to differences of medical men, medical men's dilemmas, and dubious diagnoses. Medical witnesses should be continually mindful of the fact that counsel will probe what they have omitted to do. An authority, so-called expert, would be less likely to quail before such questionings, but there are some matters in which the only expert, or at least the most expert, is the prisoner standing in the dock. Such a person, with malice aforethought, may have confused, fictitiously and factitiously, the differential signs usually indicative of murder, suicide, or accidental death. Our medical forefathers, innocent alike of morbid anatomy and of analytical chemistry, were safe only because counsel were, if possible, still more ignorant. Sir Robert Christison in 1857 was made to withdraw an emphatic statement as to the tastelessness of white arsenic when a junior counsel confronted him with a new edition of Orfila. In studying the old records which bear upon legal medicine many annoying omissions are met with. The depositions in the State trials concerning the birth of the son of King James II.'s wife are not full enough to tell us if he was born alive or born dead; in other words, whether the Old Pretender was suppositious or not (1688). The records of the sudden death of Sir Edmund Bury Godfrey still leave it a subject for discussion whether he was murdered or he slew himself (1678).[2] The recurrence of the inquest jury's verdict after a view of the body, "*Morbus caducus*," is far too frequent to be definite. Such vagueness, at a later date, led Dr. Farr to advise coroners to be more precise (1842, Fourth Report).

Certain facts of common knowledge are supposed to be admitted in court as "being in the ordinary course of nature" or as being within the judge's memory. An obsolescent limitation to medical evidence may arise, however, from the incredulity of the Bench, as where in 1857 Lord Chief Justice Cockburn discredited the testimony offered from microscopic signs; at times a similar incredulity as to newly discovered facts has been exhibited when specialists have given evidence before Royal commissions—an example being the alleged rate at which railway trains would run.

Occasionally evidence is demanded which appears to be beyond what current medical teaching demands; thus the London County Council (Education) Public Health Authority wishes to insist on a certificate that the throat of a child who has been exposed to infection is bacteriologically free from diphtheria before the child returns to school. It is a nice point for discussion how far a general medical practitioner can be compelled to give reasons on a certificate for his opinion that a child is "free from infection."

Another relative limitation arises when some restriction is imposed upon the medical witness while, wittingly or unwittingly, he is qualifying to give his evidence. Thus when a full physical examination of a person cannot be obtained, or when consent to conduct a post-mortem examination is withheld, there are several matters which otherwise might be made patent but which will in the circumstances remain obscure. To-day this form of limitation is made less noteworthy as a full physical examination is gradually becoming customary: this applies both to clinical and to post-mortem work. One is reminded in this connexion of Sir William Jenner's aphorism: "More mistakes are made, many more, by not looking than by not knowing." The advice tendered to Roderick Random at Surgeons' Hall, "Give me occular demonstration," is to a similar effect. I am told by aged practitioners that the modern method of fully exposing the affected part of a patient was not clinical etiquette in their young days, just as it was hardly the thing to remove your coat, even in obstetrical practice, before you set to serious work. As to the need of post-mortem examinations, on several occasions has this society assented to a condemnation of the practice of giving medical certificates as to the cause of death, or of propounding medical testimony in cases where a necropsy should have been performed but was not permitted.

I should classify occasions where a post mortem examination is essential under the following heads. 1. A post-mortem examination is necessary to test the truth of an alleged death by drowning. Otherwise, in the absence of eye witnesses of the fatality, the open verdict, "*Found dead in the water*," is the only possible conclusion. 2 A post-mortem examination should be made before an infant is said to have been "overlain," otherwise the open verdict, "*Found dead in bed with the parents*," is preferable. Both in alleged drowning cases and in alleged deaths from "overlying" when necropsies are allowed by the coroner not uncommonly some unsuspected malady is revealed, more especially relative to the cardio-respiratory system; thus heart disease in the former cases may have led to syncope and "cramp," and broncho-pneumonia in the latter cases may have made the infant's vital spark very dim and easily extinguishable by the lack of fresh air under the bed clothing. Foul play may be discovered—it will be recalled that King Ben-Hadad was suffocated by Hazael with a wet coverlet when he was ill in bed. 3. In cases of alleged stillbirth a necropsy will show if the child had *probably* lived after birth, although in the absence of an eye-witness the mere medical evidence will count for little. Years ago "that hydrostatic humbug" was derided. 4. A most important series of cases where necropsy should be demanded is where civil or criminal proceedings may arise out of the death—whether such proceedings may be taken against the advising medical man or some other person. Thus, where a charge of negligent treatment is preferred or where a criminal homicide may have been the cause of death a coroner will nowadays always order the body to be opened. Lastly, certain alternative conditions cannot be differentiated without the aid of some special chemical reagent or instrument—thus, a gastritis may otherwise be confused with incipient decomposition of the gastric mucosa, especially in the case of infants. All such laboratory work must have been personally superintended by the witness, otherwise the man who actually did the experiment must give the evidence.

The second variety of limitation owing to the lack of sufficient medical knowledge is not relative to the medical witness personally, but is a general inability to make a positive declaration owing to the uncertainty, insufficiency, or inconclusiveness of the facts available. Even real authorities in this variety of limitation may have to confess that they do not know certain facts, or will when pressed offer a very guarded opinion. Thus in questions of prognosis the commendable attitude may be illustrated by an aphorism of Dr. Samuel Gee: "There is only one thing certain in giving a prognosis in phthisis—namely, that you will certainly be wrong." Further, in questions of malingering the very elect may be nonplussed, as is witnessed in Dr Weir Mitchell's "The Autobiography of a Quack." The physicians of the early eighteenth century would have difficulty in discovering the fraud of Clarissa Harlowe's lover's haemoptysis of fowl's blood. A few definite instances of such limitations due to unavoidable ignorance are as follows: 1. The exact age of a living man, woman, child, or infant cannot be determined apart from a birth certificate. The age of a skeleton, after complete ossification, is guess-work. The sex of a very old or a very young person's skeleton cannot be determined. 2. In the absence of fœtal heart sounds pregnancy cannot be affirmed until quickening has been felt by an observer or the fœtal parts are palpable. Affiliation to a putative parent on account of an alleged personal resemblance is insufficient. Chastity cannot be impugned from an inspection of the hymen. 3. The presence of gonorrhœa cannot be established by microscopical evidence. 4. A small mammalian blood-stain cannot be sworn to be "human" unless its origin was witnessed. It has been suggested the analyst might aid by declaring the ratio of potassium to sodium salts. 5. Death seldom can be certified until putrefaction has set in. In the case of a sudden death, it cannot be stated whether an unwitnessed bruise was inflicted immediately before or immediately after the death. 6. That a man was drunk when he died can seldom be substantiated by a post-mortem examination of his body. 7. That an alleged "uncontrollable impulse" was not merely an uncontrolled impulse. Baron Bramwell used to say: "By an uncontrollable impulse, I mean, an impulse uncontrollable in the absence of a policeman."

The last variety of limitation is that imposed by the rules

[2] Law Quarterly Review, October, 1907.

and policy of the law; it arises on account of the essential strictness of the presumptions and of common law or statutory definitions which become more rigid with modern legislation. Thus crimes must be defined in exact terms and the medical facts must, to be of any avail, be capable of being pigeon-holed—counsel will endeavour, as they did in the bad old days of special pleading, to fit the facts into a loophole if possible. Loose popular phraseology has led to occasional surprise in this connexion; thus, in a moment of righteous anger we may say of drunkenness, "It's a crime," but as a matter of fact the law books do not recognise it as such, although it may incidentally or consequentially lead to the commission of crime.

The English law places no limitation or restriction upon testimony on the ground that the evidence was gained under the privileged circumstance of a medical adviser treating a patient—that is to say, there is no such privilege recognised *de jure*, but few judges would strive to extract such testimony from an unwilling witness. On the other hand, no limitation arises from fear of defaming another in the witness-box, for all statements made after being "sworn" are privileged. There are, however, a few limitations imposed on medical witnesses by rules of law. Medical men, as such, cannot give evidence on certain points. Thus the court will not be influenced by medical evidence which shows: 1. That a woman or a man is past the age for procreation and in the case of the former for bearing children. To the medical mind it appears *primâ facie* that a medical certificate could summarily settle the point. But the legal mind considers the admission of such a practice as well indecent as capable of too wide an extension. Thus in 1787 Lord Kenyon (M.R.), when asked to declare that a septuagenarian couple was past the age for procreation, declared "if this can be done in one case it may in another, and it is a very dangerous experiment and introductive of the greatest inconvenience to give a latitude to such sort of conjecture." He was evidently suggesting that the principle might be applied to much younger women, sterilised perhaps by surgical means, and *pro tanto* to men should mere medical evidence be admissible. In these matters the law will not often inquire beyond *habilitas ad matrimonium*, the test of which in practice is mutual ability to consummate marriage. 2. That a child born nine months after lawful wedlock is illegitimate. 3 That, in the absence of eye-witnesses, a newly born dead child was born alive. 4. That, in a common disaster, a certain person must have died last. 5. That children under seven years of age are capable of giving "consent" or of committing an indictable offence. The ground upon which these legal presumptions are based is to prevent vain, futile, and often irrelevant discussions upon subjects which are often beyond the knowledge of mankind. In some continental systems of law, where codification is the rule, there are many more dogmatic presumptions; it is claimed that such presumptions prevent perjury and waste of the court's time.

In conclusion, I think it is wise occasionally to take stock of our present ignorance as well as of our present knowledge and it is with that object that this brief paper has been compiled.

Adelphi-terrace, W.C.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTES OF THREE CASES OF RUPTURE OF THE TENDO ACHILLIS: TWO COMPOUND AND ONE SIMPLE.

BY W. H. BROWN, M.SC. LEEDS, F.R.C.S. IREL.,
CONSULTING SURGEON TO THE GENERAL INFIRMARY AT LEEDS.

THE following three cases have come under my care in private practice during the last year. Before this, in five-and-twenty years, I have never seen a case, either in hospital or outside. My object in putting the cases on record is to draw attention to the appliance I devised for the after-treatment, which succeeded in each instance in preventing anything like stretching of the healed tendon.

CASE 1.—A medical man, a little over 40 years of age, was playing tennis when he made a great effort to take a ball very wide of him; he felt something give in his heel, fell as though shot, and had to be carried off the field. When I saw him there was rupture of the tendo Achillis. The gap between the two ends was wide enough to admit two fingers being depressed between them. I put the limb up in the position of talipes equinum, and maintained it in that position by means of an anterior telegraph wire splint. At the end of a fortnight I put the limb up in plaster, and in a month from the date of the accident the patient was able to wear the apparatus described hereafter. This he wore daily for three months. Now the limb is perfectly sound.

CASE 2.—A youth, aged 20 years, wished to wash his feet and attempted to accomplish this by standing with one foot in the lavatory basin. The basin gave way and its broken edge cut sheer through all tissues down to the bone at a point about three inches above the ankle joint. Under an anæsthetic all was made as clean as possible and the cut edge of the tendon stitched with silk. In this case I made use of what is described as a "pilot" stitch—that is, a stout silk suture passed through both ends of the tendon and one and a half inches from the cut edge, this being drawn tight, leaving the cut edges quite slack and enabling the line of suture to be put in without any tension—a distinct advantage—and a method I have adopted in nerve sutures for some years with gratifying results. The skin wound was closed with silkworm gut and the limb was put up as in Case 1, leaving, however, the bandage in such a way that the antiseptic dressing could be changed without disturbing the splint. The patient made a rapid and uneventful recovery. The youth is now able to indulge in the usual athletic pursuits—i.e., cricket, tennis, golf, &c.

CASE 3.—A man, aged 50 years, seen with Dr. Arthur Hutton of Leeds, attempted to wash his feet in the same fashion as the patient in Case 2, and again the basin gave way, cutting through, obliquely, all tissues down to the bone. Under an anæsthetic the needful cleansing was carried out and a similar line of treatment was adopted as in Case 2. Again, there is nothing of interest to record, the wound healing rapidly, the patient walking about with the assistance of the appliance which I will now describe.

To prevent the obvious danger of stretching the tendon by too early strain I had a boot made, attached to which was an

artificial tendo Achillis made of powerful elastic and leather. This was fixed to the limb by two circular broad bands of leather, about six inches deep, one embracing the calf, the other the same depth surrounding the thigh just above the knee. They girths were joined together by stout webbing. They give a satisfactory purchase and the patient cannot overstretch his tendon. Of course, the elastic needs adjusting

from time to time, as it tends to get weaker, but the instrument is so arranged that this can be done by tightening a buckle of the strap from which the tendon springs. The accompanying reproduction of a photograph shows the arrangement of the artificial tendo Achillis.

Leeds.

MALGAIGNE'S HOOKS FOR FRACTURE OF THE PATELLA.

BY J. E. S. BARNETT, F.R.C.S. ENG.

I RECENTLY at the Kingston Victoria Hospital had a case of broken knee-cap in a short, stout, muscular man who refused wiring. Seeking something which offered better results than bandaging with extension I decided to use the hooks, though most text-books "damn" them "with faint praise." I had not used or seen them used before. The index finger had plenty of room between the two fragments when pressed down through the swollen tissues. On the third day after the fracture, with the patient under chloroform and after aspiration of the joint, the fragments were very vigorously rubbed together. Four snicks with a scalpel down to the bone made way for the hooks, which were fixed well home and screwed up as tightly as possible, so as to lock the two halves firmly together. Now, after six weeks, the result is bony union.

The advantages of the hooks are their facility of application by the general practitioner. They lie in front of the joint cavity, with a minimum risk of joint sepsis, and there is a good chance of bony union without the continuous presence of a foreign body such as wire between skin and bone. I had difficulty in removing them owing to the thread of screws and bolts becoming filled by a sort of rust produced by iodoform powder and gauze. This could have been prevented by the occasional use of carbolised oil.

Kingston Hill.

NOTE ON A CASE OF DORSAL DISPLACEMENT OF THE ARM IN VERTEX PRESENTATION.

BY ARTHUR G. WELLS, M.B., B.S. LOND., M.R.C.S. ENG., L.R.C.P. LOND.

THIS was a case, in private, of recent occurrence of a woman, aged 33 years, who was pregnant with her second child. The patient was very large and caused me, previously to examination of the abdomen, to suspect twins. Abdominal examination, however, revealed the presence of one child only occupying the second position, but an apparently excessive amount of liquor amnii. The pelvis was found to be very capacious and the os uteri was almost fully dilated. The pains were short and weak. I proceeded to rupture the membranes immediately and a great gush of liquor amnii occurred, much in excess of the average amount. The labour then progressed rapidly and within 20 minutes the head passed the vulva. Now came the interesting part of the labour. The head, instead of being completely born as far as the neck, stopped short after the forehead, nose, and lips had passed over the perineum, leaving the chin from just below the lower lip still within the vulva. In front the head was born to a little below the occiput and at the sides the ears were just born. Two or three more pains followed but no further advance of the head took place; but it was noticed that with each pain there was a bulging on the right side of the vulva, suggesting that something was, so to speak, hooked in the side and prevented the oncoming of the head. I then proceeded to pass the fingers between the vulva and the child's face into the vagina in the position of the bulging spot, and immediately came upon the elbow, which was caught in the side of the vulva, and on tracing the forearm forwards the hand and wrist were found to be lying behind the child's neck. I then brought the forearm down by the side of the face, converting the condition into one of head and arm, and the rest of the child was easily born with the next pain, with a very slight tear of the perineum. Whether this was due to the excessive amount of liquor amnii present, and the child passed in this condition right through the bony canal or not, I am not prepared to say, but such was the state of affairs at, and just within, the vulva.

Cognisant as I am of the very exceptional occurrence of this condition—in fact, some authorities deny even the possible existence of it—and also quite awake to the difficulties of making a certain diagnosis, I have labelled this a case of dorsal displacement of the arm in vertex presentation, and with the above facts before one the case seems to me open to no other interpretation.

Twickenham.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

THE ELIOT COTTAGE HOSPITAL, HAYWARDS HEATH.

A CASE OF TRAUMATIC POPLITEAL ANEURYSM.

(Under the care of Mr. C. R. KEYSER.)

A MAN, aged 51 years, a gamekeeper, was sent into the hospital on Sept. 17th, 1906, by Mr. R. F. H. Newton of Balcombe, who asked Mr. Keyser to see him with a view to surgical treatment. The history was as follows. On March 1st, 1905, he was shot by a shot-gun in the right popliteal space at about five yards range. A large wound resulted which bled profusely. Many shot were removed and the wound eventually healed by second intention in about three months' time. For the last year the patient had been unable to work owing to a large painful swelling in the popliteal space that produced pain and swelling in the foot and leg which were much aggravated by standing. For the last nine weeks the swelling behind the knee had much increased in size and the pain and swelling of the foot and leg had also become greater. For one month a small ulcer had been noticed on the under surface of the big toe, opposite the base of the last joint, which exuded a foul-smelling discharge. When Mr. Keyser first saw the patient on Sept. 17th, 1906, he was a healthy looking man. There were a great deal of wasting of the muscles of the right thigh and œdema of the leg as high up as the knee. The skin of the leg was much thickened and dark reddish-brown in colour. The skin of the toes, especially the big toe, was greatly thickened and almost papillomatous in appearance but only on the dorsal surface. The temperature of the two lower limbs was equal and there was no tenderness except over the middle of the right popliteal space. The right foot was sweating freely and on the plantar surface of the big toe was a small, very recently healed, ulcer. Two small shot were felt just under the skin, one just above the head of the fibula and one on the outer side of the knee-joint just above the patella. In the popliteal space there was a great deal of scarring; in the middle line particularly there was a large firm mass of scar tissue adherent to the skin and to the tendons, especially the biceps. Occupying the centre of the space and also the outer side was a large rounded swelling of about the size of a small Tangerine orange; expansile pulsation was present, which was readily controlled by pressure on the femoral artery. The pulse on the inner side of the ankle could be felt with difficulty but that on the anterior aspect of the joint could not be distinguished. There was, practically speaking, complete loss of sensation all over the dorsal surface of the foot, the toes, and the outer side of the leg, with the exception of the little toe. On the sole of the foot sensation was present but was much less than normal. Movement at the knee-joint was very good but the toes and ankle-joint were practically immoveable, both actively and passively.

As the symptoms seemed to be due to pressure of the aneurysm on the veins and nerves, Mr. Keyser thought that operation would only be of service if directed to the aneurysm itself in the popliteal space. Although the prospect of removal of the whole sac of the aneurysm did not appear to be very promising owing to the amount of cicatricial tissue present and the probable adherence of the vein and nerves to the sac and the tissues around, yet it seemed that it ought to be attempted owing to the rapid increase in size of the aneurysm and the pain and suffering which

the patient was enduring. The possibility of gangrene supervening after the operation was not lost sight of, especially as there was much venous obstruction present and trophic changes in the skin owing to interference with the nerves of the limb. The patient was kept in bed for ten days, at the end of which time the œdema of the leg had diminished considerably. On Sept. 27th, the anæsthetic being given by Dr. C. H. Glenn of Haywards Heath and with the assistance of Mr. Newton, Mr. Keyser operated. The limb was rendered bloodless by means of a Martin's elastic bandage and a tourniquet and an incision about six inches long was made in the popliteal space. The upper and lower ends of this incision were in the middle line, whilst the centre was curved so as to turn back a small flap over the aneurysm. The skin was firmly adherent to the deeper parts and it was only after great difficulty and patient dissection that the sac was exposed. It was then found that the internal popliteal nerve was spread out and absolutely incorporated with the sac of the aneurysm. The external popliteal nerve was separated from its adhesions and the internal freed as far as possible. Even at the upper and lower parts of the popliteal space the nerves, artery, and vein were closely matted together and it required much care to separate them. This was, however, done and the artery was ligatured above and below with catgut. A drainage-tube was inserted and the wound was closed with horsehair sutures. The operation lasted two hours. The limb was enveloped in cotton-wool and the foot elevated. The patient had a fairly good night and with the exception of some tingling in the foot the pain was very slight. The circulation in the limb was good with the exception of a small patch under the big toe (the site of the old ulcer) where the skin was purplish in colour, mottled, and cold. On Sept. 29th the drainage-tube was removed. On Oct. 2nd the wound looked healthy except the central part, where the skin had been peeled off the deeper tissues. This was blood-stained, dark in colour, and very tender. The patch of gangrene on the toe remained as before. The central portion of the wound eventually sloughed and then very slowly granulated up. The gangrenous spot on the toe never extended more deeply than the skin and gradually dried up. All the stitches were removed on Oct. 5th. On Nov. 1st massage was employed in order to give tone to the wasted muscles and to increase the mobility of the toes and ankle. By Nov. 20th the patient was able to walk about quite comfortably without any artificial assistance; there was no pain or swelling in the leg and the movements of the toes and ankle were gradually improving. He was discharged from the hospital on Dec. 9th, well able to walk about, and the condition of the foot and ankle was improving daily.

The patient is still (Jan. 15th, 1907) making progress towards recovery; there is more sensation in the foot and leg and more movement is obtained at the ankle-joint. The site of the gangrenous patch under the toe, however, still breaks down occasionally and discharges a small amount of sero-pus. The man's general health continues excellent and there is no trouble connected with the parts in the popliteal space.

LEEDS PUBLIC DISPENSARY (SOUTHERN BRANCH).

A CASE OF PERIARTHRITIS WITH ANÆMIA AND ENLARGED SPLEEN (STILL'S DISEASES).

(Under the care of Dr. J. GORDON SHARP.)

FOR the notes of the case we are indebted to Dr. R. B. Radcliffe, resident medical officer.

In May, 1906, a boy, aged nine years, was first seen with the history that a month previously he had received a blow or kick on the abdomen while engaged in play with other boys of his own age. He complained of pain in the abdomen in the region of the cæcum. With this there was some rise of temperature. He was sent to bed and was visited at his own home for some days, when he was able to get up, and in the course of a week he was free from abdominal symptoms with the exception of some tenderness and the suspicion of enlargement of the retroperitoneal glands. By the end of three weeks all abdominal symptoms had disappeared and then it was observed that he had swelling around the wrist- and ankle-joints and when he began to move about he was somewhat breathless and anæmic. From the knowledge of the subsequent history of the case it may be that the rise of temperature and the abdominal tenderness might really have been two factors marking the onset of the periarthritis. So much notice was paid to the alleged injury to the abdomen that probably other more important signs and symptoms were passed over and besides the rest in bed might have masked them. The boy's mother was questioned as to the presence of growing pains and she said that he had growing pains for some months and that lately they had been getting worse. But here again one was face to face with the common experience that almost every mother sooner or later discovers that her child suffers from this indefinite complaint. Nothing further of importance could be elicited bearing on the history. With regard to the physical signs, the boy was anæmic and on exertion he was somewhat short of breath. A thrill was seen and felt in the line of, and one and a half inches from, the left nipple and when the stethoscope was used a distinct presystolic murmur was heard over this area and not audible outside a radius of one square inch. These signs were repeatedly observed, so that there was no doubt about their existence. The spleen was enlarged but (excepting the doubtful enlargement of the retroperitoneal glands as already mentioned) the lymphatics were not so much enlarged as to be a noticeable feature. The liver was not enlarged and there was no jaundice. Lastly, there was the swelling around the wrist- and ankle-joints and of a painless character. Treatment was as follows. 1. Rest. 2. Five minims of tincture of perchloride of iron and 20 minims of glycerine were given in a tablespoonful of water three times a day after meals. In a fortnight the dose of iron was doubled, the other parts of the prescription remaining the same. 3. A piece of blue ointment was directed to be rubbed into the affected joints once a day. This line of treatment was carried out from June 6th to August 15th, when the boy was found to be practically well excepting for the thickening around the wrists and ankles which, although improved, had not completely disappeared. At this latter date he went to the country. He was told to come again for inspection in two months' time.

On examination on Oct. 24th there were no anæmia and no breathlessness. No thrills were felt and no murmurs were to be heard. The spleen was very little enlarged. The liver was not enlarged. The glands along both sterno-mastoids were felt to be hard and in size perhaps larger than a pea. This might suggest a previous enlargment, but, as already stated, there was never a pronounced enlargement. (In Still's cases the glandular enlargement was stated to be hard in nature.) The slight thickening around the wrist- and ankle joints was distinctly not due to increase in the bones, but was in the tendon sheaths and other parts surrounding the joints. This caused the patient almost no inconvenience.

Remarks by Dr. SHARP.—With regard to the history of Still's Diseases, in THE LANCET of Nov. 14th, 1896, p. 1378, Still reported a series of cases in children having a resemblance to rheumatism or rheumatoid arthritis in the adult. In reading an account of these cases it looks as if there might be more than one affection described by the author, and the proper designation should be Still's diseases instead of Still's disease. The subject was fully discussed at the meeting at which Still read his paper and the speakers dealt with the relationship of arthritis to changes in the liver, spleen, lymphatic glands, the blood, to syphilis, gonorrhœa, and to pneumonia. Some of the speakers seemed to look upon the disease as acute rheumatism with something more added on. It is interesting to note that in his reply Still said that the liver was not enlarged in his cases.

In THE LANCET of April 19th, 1902, p. 1107, Parkes Weber reports a case of this disease in a boy, aged 4¾ years. The joints of the knee, the elbow, the foot, and the hands were swollen, due to infiltration around. The spleen, the liver, and the lymphatic glands were enlarged and besides there were cervical rigidity and endocarditis. The same author describes the course of this case 11 months later.[1] The joints were nearly normal. The glands were normal. The spleen was only slightly enlarged. The liver was not enlarged. The rigidity of the cervical portion of the spine had gone. The heart was enlarged and a systolic murmur was left (presumably mitral). The red cells were 4,060,000 and the white cells 14,064. In January, 1902, the white cells were 31,000 in number.

The following points seem to me worthy of notice in the

[1] Brit. Med. Jour., March 28th, 1903, p. 730.

case now under observation. I believe acute rheumatism had nothing to do with the case, for although the mother said that the boy had growing pains he had none of the tenderness associated with this affection. I likewise believe that the presystolic mitral murmur was not a factor in the periarthritis, for one often finds this sign in children without any apparent cause. The hardness of the glands is certainly suggestive of syphilis but the boy had no other manifestations of this disease. The blue ointment employed in the treatment was prescribed with no other object in view than the reduction of the periarthritic thickening. Those of us who saw the boy were struck with the benefit which followed the taking of the perchloride of iron and glycerine mixture. After considering the whole subject it seems to me that a careful examination of the blood offers the likeliest source of light on the pathology of the affection and when I have another case I shall have repeated differential counts made.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Observations on MacConkey's Bile Salt Neutral Red Medium.—Typhoid Fever Diagnosed by Blood Culture in the Absence of Agglutination Reaction.—A Third Case of Influenzal Endocarditis Diagnosed by Blood Culture.—The Incidence of Spontaneous Cancer in Mice.—Observations on the Treatment of Lesions by Passive Congestion.—Method for Testing the Digestive Power of the White Corpuscles.

A MEETING of this society was held on Jan. 15th, Sir A. E. WRIGHT, Vice-President, being in the chair.

Dr. T. J. HORDER read, in the absence of Dr. F. W. ANDREWES, his paper on Observations on MacConkey's Bile Salt Neutral Red Medium. The writer said that MacConkey had introduced culture media containing ½ per cent. sodium taurocholate with neutral red and any desired carbohydrate as a means of differentiating between various members of the bacillus coli group. He had recently employed the agar medium which MacConkey recommended and had been much struck by its great utility not only in the study of the bacillus coli group but in the case of many other bacteria. He showed a number of plate cultures prepared according to MacConkey's formula and which contained a series of diverse carbohydrates and allied substances. These were as follows: the pentose, *isodulcit* or *rhamnose;* the monosaccharide, *glucose;* the disaccharides, *saccharose* and *lactose;* the trisaccharide, *raffinose;* the polyatomic alcohols, *glycerine* and *mannite;* and the glucoside, *salicin*. He had selected those eight substances because they were amongst the most useful differential tests for members of the bacillus coli group. On the plates were to be seen growing six members of that group—namely, bacillus coli communis, the bacillus enteritidis of Gärtner, the typhoid bacillus, Schottmüller's two paratyphoid bacilli A and B, and Shiga's dysentery bacillus; also a typical streptococcus fæcalis and two different staphylococci. All this had been done before by MacConkey, at least as concerned the bacillus coli group, though perhaps not with precisely the same series of test substances. Nevertheless, Dr. Andrewes thought it worth while to show the cultures in case some members of the society might be unaware of the extent to which this valuable method of differentiation could be used and also because the explanation of the phenomena put forward by MacConkey, though they felt sure it was in the main true, did not quite cover all the facts. MacConkey regards the colour of the growth as essentially dependent upon the capacity of the given organism to ferment the given test substance, with the formation of acid, whereby a red colour was produced in the growth. In the majority of cases this certainly held good, but not in all. As regards the actual plates shown, it would be most convenient to consider the results organism by organism rather than plate by plate. In the following tables the results so far as concerned colour production on the plates, are set out with the results as concerned acid formation from the same chemical substance in litmus broth, both under aerobic conditions. Dr. Andrewes had had to put in interrogation marks (?) here and there where the colour reaction was not decisive. It would be seen that while there was a very striking, broad, general correspondence between the two sets of reactions there was by no means identity. Thus in the case of bacillus coli communis identity was complete save in the case of salicin. This body was readily fermented by the strain of bacillus coli employed, yet there was no red colour at all on the bile salt plate. In the case of Gärtner's bacillus there was practically complete identity, though in the test tube this organism partially fermented raffinose. Paratyphoid A grew beautifully red with glycerine on the bile salt plate but failed to ferment glycerine in the test tube and the same was true of paratyphoid B. With the typhoid bacillus the identity of the two sets of reactions was complete. Streptococcus fæcalis, on the other hand, was colourless with glycerine on the bile salt plate, though readily fermenting it in the test tube, and it gave very feeble colouration with isodulcit on the plate, though it could easily ferment this substance. The two staphylococci tested both fermented lactose equally well. Yet on bile salt neutral red lactose agar staphylococcus aureus formed no colour at all, whereas staphylococcus epidermidis albus grew bright crimson. It was therefore clear that there was some other factor concerned than mere ability to ferment the test body with formation of acid, though what this was Dr. Andrewes did not know. The reactions in litmus broth which he had given were all carried out aerobically so as to be comparable with the plates. They did not in all cases correspond with those given by MacConkey, which were carried out anaerobically. But although one could not as yet explain all the facts, it was evident that these media afforded a wide choice which might be of considerable service in the search for any given organism of known reactions. And this field of usefulness extended beyond the limits of the bacillus coli group. He had tested a number of streptococci and had found that the sodium taurocholate inhibited the growth of streptococcus pyogenes, whereas the common fæcal streptococci grew readily and with many of the test bodies

TABLE I.—*Reactions on Bile Salt Neutral Red Agar Plate (Aerobic).*

—	Isodulcit.	Glucose.	Saccharose.	Lactose.	Raffinose.	Glycerine.	Mannite.	Salicin.
Bacillus coli communis	+	+	·	+	·	+	+	·
Bacillus enteritidis (Gärtner) ...	+	+	·	·	·	·	+	·
Paratyphoid A (Schottmüller) ...	+	+	·	·	·	+	+	·
,, B ,, ...	·	+	·	·	·	+	+	·
Bacillus typhosus	·	+	·	·	·	+	+	·
Bacillus dysenteriæ (Shiga)	·	+	·	·	·	+	·	·
Streptococcus fæcalis	?	+	+	+	?	·	+	+
Staphylococcus pyogenes aureus	·	·	·	·	·	+	+	·
Staphylococcus epidermidis albus	·	?	?	+	·	+	·	·

+ = red colour; · = a colourless growth.

TABLE II.—*Reactions with Same Chemical Body in Litmus Broth (Aerobic).*

—	Isodulcit.	Glucose.	Saccharose.	Lactose.	Raffinose.	Glycerine.	Mannite.	Salicin.
Bacillus coli communis	+	+	·	+	·	+	+	+
Bacillus enteritidis (Gärtner) ...	+	+	·	·	?	·	+	·
Paratyphoid A (Schottmüller) ...	+	+	·	·	·	·	+	·
,, B ,, ...	?	+	·	?	·	·	+	·
Bacillus typhosus	·	+	·	·	·	+	+	·
Bacillus dysenteriæ (Shiga)	—	+	·	·	?	·	·	—
Streptococcus fæcalis	+	+	+	+	·	+	+	+
Staphylococcus pyogenes aureus	·	+	+	+	·	+	+	·
Staphylococcus epidermidis albus	—	—	—	+	—	—	·	—

+ = formation of acid; · = no formation of acid (formation of gas disregarded).

formed a bright crimson growth. This fact confirmed the opinion which he had elsewhere advanced as to the specific difference between these organisms. In the case of the staphylococci the media would prove of similar utility.

Dr. HORDER read a paper on a case of Typhoid Fever Diagnosed by Blood Culture in the Absence of the Agglutination Reaction. He said that recent observations made upon patients suffering from typhoid fever showed that the bacillus could be cultivated from the blood in a considerable proportion of cases. A single case of successful blood culture would not, therefore, deserve the notice of the society were it not that the case had some points of special interest. The patient, a young man, aged 27 years, was taken ill on Nov. 27th, 1906. Seen in consultation on Dec. 3rd, the eighth day of the disease, the chief clinical features were high continued fever (103·4° F.), headache, active delirium, and slight general bronchitis. The presence of a urethral discharge had suggested the possible existence of gonococcal blood infection. There was, however, no arthritis or any evidence of serous membrane inflammation. Films made from the urethral pus showed the presence of gonococci. A leucocyte count resulted in the discovery of a leucopenia, the white cells numbering 1400 only. A blood culture was undertaken at the same time. The leucopenia suggested that the disease might be typhoid fever. The agglutination test was therefore performed, with the result that a 1 in 20 dilution of the blood gave a few small clumps at the end of an hour. A 1 in 40 dilution gave no clumping at the end of an hour. As it is usually held that considerable dilution of the blood is necessary to obtain growth of the typhoid bacillus two of the broth tubes used in the blood culture were added each to 50 cubic centimetres of broth. In 24 hours there was no visible growth in either of the tubes, but in 48 hours a fluffy growth appeared in the blood-clot of two broth tubes which had not been diluted and the two diluted broth tubes showed uniform turbidity. In the blood-agar tubes, where the blood had received no dilution at all, good growth also appeared. On examination all the tubes showed the presence of an organism resembling the typhoid bacillus and it was found that this organism was clumped completely and rapidly by a dilution of 1 in 80 of the blood from each of two convalescing typhoid patients. In the course of the next few days classical reactions were obtained by use of the customary tests. The patient developed rose-spots eight days after the blood culture. The points of interest in this case were: (1) the early diagnosis of the case; (2) the demonstration of the bacilli in the blood in the absence of Widal's test; (3) the coexistence of a marked leucopenia with a large number of bacilli in the systemic blood-stream; and (4) the facility with which the organism grew without having recourse to high dilution of the medium or to the addition of such substances as ox-bile, &c. It might be that in this particular case the bactericidal power of the blood for the typhoid bacillus was exceptionally low. And the absence of the agglutination test might itself have been evidence of feeble immunity on the part of the patient.

Dr. HORDER related a Third Case of Influenzal Endocarditis diagnosed by Blood Culture. Last year he read a paper before the society in which he described two cases of ulcerative endocarditis due to Pfeiffer's bacillus influenzæ. A pure culture of the bacillus was obtained upon more than one occasion from the blood of each patient, and in both cases post-mortem observations confirmed the existence of this organism in the heart-valves and the absence of other organisms. Dr. Horder suggested at the time that the occurrence of Pfeiffer's bacillus in association with ulcerative endocarditis would probably be found to be not uncommon. He was able that night to report a third case of endocarditis in which a pure culture of the bacillus influenzæ was obtained from the patient's blood. The patient was a man, aged 50 years, admitted to St. Bartholomew's Hospital, where he was under the care of Dr. Samuel West. He had had rheumatic fever when 23 years of age. The onset of his fatal illness was insidious and its probable duration was about four months. The clinical picture was that of a chronic case of ulcerative endocarditis and there was nothing to suggest the nature of the causal organism. The technique of the blood culture was that previously described. In each of four broth tubes, as well as upon two agar slopes, minute colonies appeared in 24 hours and these were large enough to count in 48 hours. It was estimated that there were no fewer than 50 colonies present in each cubic centimetre of blood. The organism obtained showed several of the features noted in Dr. Horder's previous paper. Thus, the members examined in the original blood-broth tubes were highly coccoid in form, and when seen as definite short bacilli they presented a bipolar appearance so frequently that casual observation might have passed the film as being that of a short streptococcus. Again, first and second subcultures were obtained without the addition of blood to the medium and the colonies on agar were at first opaque. Third subcultures, however, gave the characteristic dewdrop-like colonies. Gram-staining was readily and persistently negative in all colonies examined. Unlike the two cases previously described, this patient's leucocytosis was low—10,000, resembling what occurs most often in cases of chronic streptococcal endocarditis. Death occurred rather suddenly two weeks after the blood culture had been undertaken. A post-mortem examination was not obtained. In view of the present difficulties in satisfactorily assigning the exact rôle played by Pfeiffer's bacillus in the causation of influenza the occurrence of these cases of chronic septicæmia due to this organism obtains additional importance. That it is possible for the blood stream to swarm with any organism and for the patient meantime to be comparatively free from acute symptoms is one of the problems of immunity. That this organism is occasionally Pfeiffer's bacillus influenzæ would appear to raise a serious difficulty in accepting the bacillus as the sole primary agent in the disease clinically known as influenza.

Mr. F. W. TWORT gave the following facts in relation to the Incidence of Spontaneous Cancer in Mice. He said that during the past two and a half years he had kept a large number of mice; during the first year out of some 100 mice no case of cancer occurred. During a subsequent period of 18 months out of some 120 mice 20 cases of cancer had occurred. One of these was a primary carcinoma of the lung and another was primary carcinoma at the junction of the stomach with the duodenum. Secondary deposits were present in the glands. This growth occurred in an old male mouse. All the remaining animals affected were females. Around many of the growths sarcosporidia were found in considerable number. He considered that this large incidence of cancer among mice was unusual, for he had kept mice for many years previously and had not seen a case in which a cancer visible to the naked eye was present.—Dr. W. BULLOCH said that the proportion of mice affected was much higher than he had met with in the mice kept in laboratories; on the other hand, only young mice were usually kept, whereas Mr. Twort had kept older mice.—Dr. E. F. BASHFORD said that the proportion of cases affected was undoubtedly high. Among 20 descendants of two mice which had cancer in only three was cancer present.

Dr. J. H. WELLS gave the results of some Observations on the Treatment of Lesions by Bier's Method (Passive Congestion). He said the treatment depended on two factors: (1) the increased supply of blood to the part; and (2) the presence in the blood of a substance with a high bactericidal power. Bier's method was to produce passive congestion by applying an elastic bandage on the proximal side of the lesion. In the first case, lupus of the elbow, the bandage was applied for an hour. The opsonic index, which before the application was 0·7, rose after removal of the bandage to 1·2 to 1·4; the same effect was noted on a second occasion. In the second case, tuberculous synovitis of the knee of nine months' duration, the opsonic index before treatment was 0·9; the bandage was applied for three hours and the index rose to 1·2. In a third case a similar effect was produced. In two other cases with external wounds the same treatment was adopted. A similar rise in the opsonic index was shown, but the lymph which exuded from the ulcer showed a falling opsonic index. The opsonic curve in these cases corresponded closely with the curve seen after artificial inoculation and after massage, and it was suggested that passive congestion had the same effect as these other two methods—raising the opsonic index by auto-infection.—Dr. R. W. ALLEN called attention to the fact that he had shown that the plasma obtained from muscle gave a much higher opsonic index than blood serum, and he attributed the good results obtained from massage to the fact that muscle plasma passed into the general circulation.—Sir A. E. WRIGHT doubted if the rise in the opsonic index after massage could be attributed to muscle plasma, for massage gave in the first place a negative phase, whereas if the raised opsonic index were due to the muscle plasma the rise of index should occur at once.

Sir A. E. WRIGHT demonstrated (*a*) a method for testing the tryptic activity of leucocytes and the antitryptic power of the serum, and (*b*) a method for measuring that tryptic power for clinical uses. A known quantity of blood was drawn from the finger and diluted with four parts of blood-warm and sterilised distilled water. From this a pellet of clot separated which inclosed all the white cells. The red blood corpuscles and serum were now washed away. Four tubes were then prepared; to all of these gelatin was added and to two of them serum was also added. After the tubes have been incubated, most conveniently at 37° C., for two to three days, in the former, digestion of the clot and of the gelatin took place; in the tubes, however, to which the serum had been added, no digestion occurred, proving that serum had some antitryptic action. In order to estimate the amount of tryptic action the following method was adopted. Known quantities of corpuscles and of albumin were taken into a capillary tube with varying dilutions of serum. In the mixture with pure serum no digestion took place. As the serum was further diluted more and more digestion took place, so that in the mixture which contained no serum complete digestion occurred. Such a method formed a means of estimating the tryptic action of any substance.

CLINICAL SOCIETY OF LONDON.

Acute Pneumonia with Abscess of the Lung and Acute Endocarditis.—Myxœdema with Changes in the Parathyroid Glands.—The Connexion of Tetany with Dilated Colon in Children.

A MEETING of this society was held on Jan. 11th, Mr. H. H. CLUTTON, the President, being in the chair.

Dr. FRANCIS H. HAWKINS (Reading) read notes of a case of Acute Pneumonia with Abscess of the Lung and Acute Endocarditis. The patient was a man, aged 51 years, who presented signs of pneumonia of the upper lobe of the right lung. After the temperature had been normal for a few days it gradually rose for ten days, then suddenly went up to 105° F. and fell to 102°, when the patient broke out in a profuse perspiration. On the following day he had a rigor and the temperature rose to 104°, then fell to 96°, and he again perspired profusely; two days later the patient became comatose and died. At the necropsy the right upper lobe was in a state of grey hepatisation; it contained three abscesses varying in size from that of a walnut to that of a hen's egg; all were lined with a distinct lining membrane. At the base of the aortic cusp was a recent fibrous deposit which on being removed showed an ulcerated surface. No murmur had been heard during life. Dr. Hawkins pointed out the rarity of abscess as a complication in acute pneumonia. He regarded the case as one of endocarditis pneumoniæ, and mentioned that Weichselbaum had demonstrated the diplococcus pneumoniæ in a growth on the cardiac valves in similar cases.—Dr. C. THEODORE WILLIAMS commented on the suddenness of onset of abscess of the lung in such cases and the invariably fatal issue. There was no time, even if the other indications were favourable, for surgical intervention. Happily the complication was a rare one; he could only recall about four cases. In one of these, a woman about 60 years of age, large quantities of pus had been expectorated.—Dr. HAWKINS, in reply, wished to emphasise the fact that the expectoration was not purulent in his case; it was ordinary pneumonic sputum.

Dr. DAVID FORSYTH read a paper on a Fatal Case of Myxœdema with Changes in the Parathyroid Glands which will be found at p. 154 in the present issue of THE LANCET.

Dr. F. LANGMEAD read the notes of three cases of children in whom Relapsing Tetany had been associated with Dilatation of the Large Intestine. Case 1 was that of a boy, aged six years, who between November, 1903, and April, 1905, was admitted five times into the Hospital for Sick Children, Great Ormond-street, under the care of Dr. A. E. Garrod, suffering on each occasion from an attack of tetany. Each attack was accompanied by the evacuation of yeasty pultaceous stools and distension of the abdomen. Abdominal examination revealed the presence of a large hollow viscus on the left side. All treatment was ineffectual until lavage of the large intestine by means of a rectal tube was resorted to, when on each occasion improvement leading to recovery was initiated. The last attack was complicated by fatal diphtheria. Post mortem the hollow viscus was seen to be the sigmoid flexure which was very dilated and occupied the greater part of the left half of the abdominal cavity. It held about 13 ounces of fluid. Case 2 was that of a boy, aged three years and two months, who was admitted on May 10th, 1906, also under the care of Dr. Garrod, for his fourth attack of tetany. This proved to be accompanied, as in Case 1, by the passage of pultaceous motions and the presence of a large hollow viscus in the abdomen. Lavage was temporarily successful, but a month after admission diarrhœa and rapid wasting began and operative treatment was employed. Mr. W. A. Lane removed ten inches of dilated sigmoid flexure and at first the child became better. Death, however, occurred 12 days afterwards. Post mortem the remaining large intestine was found to be enormously dilated, the walls being thin and atrophic. No obstruction was present. Case 3 was that of a girl, aged two and a half years, who was admitted under the care of the late Dr. Sturges in June, 1884, for repeated attacks associated with abdominal distension and offensive undigested motions. She was an emaciated child and continued to waste and died from a terminal broncho-pneumonia. Post mortem the only lesion found except broncho-pneumonia was a dilated transverse colon. Dr. Langmead also referred to a case reported by Dr. H. Batty Shaw and Mr. H. T. Mant.[1] It was that of a girl who for four years had suffered from gastro-intestinal disorder, for 18 months had had abdominal distension, and for seven months repeated attacks of tetany. Thyroid substance had proved effectual when other measures had failed. By operation a general dilatation of the large intestine had been found. These cases formed a definite and apparently hitherto unrecognised group, to which four attributes were common: (1) obstinate relapsing tetany; (2) abdominal distension; (3) offensive unhealthy motions; and (4) a dilated large intestine. The disappearance of the tetany after the bowel was irrigated and its reappearance when accumulation of the characteristic fæces took place showed that it was due in these cases to toxic absorption from the bowel. This favoured the toxæmic theory of tetany in general. Malnutrition, which was present in these as in most described cases, probably acted by producing an unduly irritable nervous system.—Dr. H. G. TURNEY discussed the possibility of recognising by an examination of the abdominal distension whether the sigmoid or the whole colon was dilated.—The PRESIDENT said that he had operated on two cases in adults in which tetany was not present. He discussed the operative measures advisable and declared himself in favour of preliminary drainage of the colon for a month or so before attempting resection.—Dr. GARROD considered it was impossible either in the child or the adult to distinguish between enormous sigmoid dilatations and other colon dilatations. In such cases the sigmoid often extended over the whole abdomen, whereas, on the other hand, colon dilatations might closely mimic an enlarged sigmoid in its physical signs.—Dr. LANGMEAD, in reply, said that he would group the sigmoid and colon dilatations together for this purpose as forming a single condition.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on Jan. 9th, Dr. J. W. Ballantyne, the President, being in the chair.—Dr. Frederick Porter communicated a case of Acute Albuminuria caused by the pressure of a tumour on both ureters. The patient, a multipara, aged 34 years, first came under notice complaining of backache and pain in the right hypochondriac and lumbar regions for five years. A tumour with the characteristics of a large moveable kidney was palpated in the right hypochondrium. Several months later the patient developed acute albuminuria with severe œdema of the whole body. Examination showed that pain was now referred to the right iliac region and a tumour was palpated in that region. On operation a multilocular cyst attached to the broad ligament and pressing on the ureters was found and removed. The albumin disappeared from the urine in nine weeks. The patient is now four months pregnant and is taking a light mixed diet.—Dr. Elizabeth H. B. Macdonald (Dundee) read a paper on Intractable Uterine Hæmorrhage and Arteriosclerosis of the Uterine Vessels. The paper was illustrated by 30 micro-photographs. Dr. Macdonald said: Many cases of severe uterine hæmorrhage occurring near the menopause without obvious cause have been reported within recent years. By many observers, Reinecke, Cholmogoroff, Pichesin and Petit, Pozzi, and more recently Barbour, the vessel changes

[1] Transactions of the Clinical Society of London, vol. xxxix.

have been regarded as the causal factor. Theilhaber, believing the vessel changes in many of the cases to be merely physiological, lays stress on the part played by the musculature, and Palmer Findley has recently supported him enthusiastically in this view. Anspach (1906) has demonstrated the physiological increase in elastic tissue in parous uteri, and suggests that hæmorrhage in some cases may be due to failure in the normal elastic increase. Another class of observers has sought the cause in ovarian changes. From a consideration of the mode of occurrence and control of normal menstrual hæmorrhage, the possible causes of abnormal hæmorrhage may be deduced. They fall naturally into three groups: (1) abnormalities in the periodic ovarian stimulation; (2) conditions giving rise to muscular insufficiency, either from actual deficiency of muscular tissue or loss of tone and consequent deficient response to vaso-motor stimulation; and (3) conditions giving rise primarily to continued congestion of the endometrium, either from increased arterial supply or venous obstruction. The first group has possibly more significance than is generally accorded to it. In considering cases coming under the second heading of muscular insufficiency the vessels are to be regarded as essentially part of the uterine musculature. The uterus may be ideally considered as a muscular expansion of its vascular walls, as Keiffer has pointed out. The third group is important and probably includes most of the cases of hæmorrhage becoming evident at the menopause. The vascular changes in the uterus, physiological and pathological, require special consideration. There is a definite increase in elastic tissue in the vessel walls and throughout the uterus generally with every pregnancy. Periarterial and perivenous degeneration, the degenerated areas showing a deposit of elastic tissue, is normal in parous uteri. This is shown in a case where the uterus was removed for severe menstrual pain, interstitial fibromyoma being suspected, but only a glandular endometritis being found on examination. Premature senile changes associated with alcoholism are demonstrated in a case where the symptoms pointed to cancer of the body of the uterus and where at operation the palpable tumour was found to be a sigmoid cancer and the uterus to be small and senile but otherwise apparently normal. Somewhat similar vascular changes are found in a case where there had been severe menorrhagia for ten years. The association of uterine arterio-sclerosis with general arterio-sclerosis is shown in a case with a history of syphilis. Here the vascular changes present peculiar features; no typical periarterial degeneration is found. The degenerated areas within and surrounding the vessel walls are composed of a more or less degenerated fibrous tissue and show no elastic deposit; at the same time there is a definite increase in elastic tissue in the interior of the larger vessels. The question is whether there is an arterio-sclerosis of the uterine vessels apart from that brought about by physiological causes. If so, will the condition necessarily be accompanied by hæmorrhage? Westphalen and Thoma have endeavoured to show that the peculiar vessel changes in the uterus are essentially due to the changes in the blood pressure to which the functioning uterus is subject. The periodic increase in blood pressure at the menstrual periods, and still more the pressure changes incident to pregnancy and the puerperium, cause changes in the uterine vessels to which no other vessels in the body are subject to the same extent. The uterine vessels, so to speak, are shorter lived than any others. If, now, it is supposed that changes in blood pressure in these arteries arise from some pathological condition similar changes will presumably occur. The changes in the vessels due to physiological processes cannot be regarded as causes of hæmorrhage. They may go to an extreme degree without the occurrence of any abnormal bleeding. This is only natural. Further, since these changes are essentially due to changes in blood pressure associated with the functioning uterus, they are possibly indistinguishable from changes due to a pathological increase in blood pressure. In the causation of hæmorrhage the important thing is the condition which gives rise to the vessel changes. To speak of arterio-sclerosis as the cause of the hæmorrhage is a mere confounding of words. The hæmorrhage is a symptom of the condition of which the arterio-sclerosis is a sign. If the conditions leading to arterio-sclerosis exist hæmorrhage may occur before the vessel changes. At the opposite extreme are those cases where the changes have extended to the vessels of the endometrium and where the diagnosis may be made from curettings.—The President, Dr. F. W. N. Haultain, Dr. J. Ritchie, Dr. J. M. Munro Kerr (Glasgow), Dr. W. Fordyce, Dr. B. P. Watson, and Dr. Porter discussed the paper and Dr. Macdonald replied.

SOUTH-WEST LONDON MEDICAL SOCIETY.—A meeting of this society was held on Jan. 9th, when a paper was read by Mr. Charters J. Symonds on the Diagnosis and Treatment of Malignant Disease of the Cæcum. Mr. Symonds related a series of cases, which he illustrated by preparations, drawings, and lantern slides, showing the varieties of the clinical histories which were presented and the difficulties which lay in the way of accurate diagnosis. In most cases colic was a predominant feature and the recurrence of colic indicated the necessity of a careful abdominal examination as a matter of routine. Colic was not, however, invariably present, as shown by a patient who came for treatment on account of a tumour in the right iliac fossa which had been discovered by herself although giving rise to no symptoms. The differential diagnosis from chronic appendicitis was of the greatest importance, as an error that might involve the postponement of operation was fatal. The pathognomonic distinction lay in the mobility of the tumour in early stages, whereas appendicular masses being inflammatory were always fixed. More rarely tuberculous ulceration of the cæcum or enlargement of glands in the ileo-cæcal angle might give rise to difficulty in diagnosis. Age was of no value in forming an opinion; he had operated on patients as young as 34 and as old as 75 years. The treatment that could alone be effective was by operation and the method adopted was the removal of a portion of the ileum and of the ascending colon and the lateral anastomosis of the former into the latter. The glands of the mesentery were removed as far as possible, involving in some cases a difficult and protracted procedure. The results had on the whole been most successful. The conditions under which an operation should be undertaken were considered; it was a question whether the presence of serum was not a bar to successful operation as it appeared probable that serious symptoms had followed in one case which were attributed to the collection of serum in the cavity left by operation; in this patient a rapid infection of the wound by the growth had taken place. The involvement of coils of intestine did not necessarily require the abandonment of the operation; such involved coils might be separated or even resected. The condition of the patient as to pallor and wasting had to be taken into consideration and much judgment was needed in forming an opinion, as they might proceed from small and repeated hæmorrhages, or from septic absorption, or from the cachexia of malignancy. In the two former an operation might be performed without hesitation. Mr. Symonds urged the wisdom of early operation, pointing to the good results which ensued. He deprecated too light an estimation of the nature of a tumour because it was moveable, or of long duration, or existent in a patient apparently in good health. He held that at present no limits could be placed to the extent of an operation provided that all diseased structures could be removed.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held on Jan. 4th, Dr. L. P. Mark, the President, being in the chair, when the following cases of interest were shown: Mr. D. J. Armour showed: 1. A man, aged 70 years, with an Epithelioma on the Alveolar Border of his Upper Jaw. His teeth were in a very bad condition and a jagged stump on the lower jaw exactly fitted into the excavation formed by the growth on the upper jaw. 2. A young man from whom he had removed a large Endothelioma from the Left Frontal Lobe weighing three and a half ounces. It was apparently growing from the falx cerebri and was enucleated without much difficulty and the patient made a perfect recovery.—Mr. Aslett Baldwin showed two sisters, one aged three and a half years and the other 11 years, with Bilateral Congenital Dorsal Dislocation of the Hip and the typical waddling gait. The trochanters could be drawn down a considerable distance in the younger child but only to a slight extent in the elder one. Mr. Baldwin thought the younger patient could be greatly benefited by a combination of Lorenz's operation and opening the joint from the front to make sure that the front part of the capsule was freed from the floor of the acetabulum.—Mr. E. P. Paton showed a man with Multiple Perforating Ulcers and marked signs of locomotor ataxy.—Mr. J. G. Pardoe exhibited a Growth in the Neck treated by the x rays. A microscopical examination showed it to be typically tuberculous with many giant cells.

Reviews and Notices of Books.

Pathology, General and Special, for Students of Medicine. By R. TANNER HEWLETT, M.D. Lond., M.R.C.P. Lond., D.P.H. R.C.P.S. Lond., Professor of General Pathology and Bacteriology in King's College, London; Lecturer on Bacteriology, London School of Tropical Medicine; Physician to the Seamen's Hospital, Greenwich. London: J. and A. Churchill. 1906. Pp. 540. Price 10*s.* 6*d.* net.

Professor Hewlett's book is primarily intended for the use of students and practitioners of medicine and in the preface we are informed that this object has throughout been kept in view; in other words, that the essentials of general and special pathology, with special reference to their bearing upon the art of healing, have been detailed. We may at the outset congratulate the author upon the successful manner in which he has carried out his intentions, for the subject matter is carefully arranged and concisely presented and very few important considerations have been omitted; indeed, it is rather a matter for surprise that he has been able to compress so large an amount of useful and up-to-date information within such comparatively small compass, the more so that his book is readable and is not a mere catalogue of facts and theories. A great deal of recent work has been succinctly summarised and incorporated in the text, and in cases where a detailed discussion of problematical matters or a minute presentation of the latest results is outside the scope of the work references are given in footnotes to important monographs or to papers with bibliographies. These references, being very carefully chosen, serve to enhance the value of the book considerably.

The first eight chapters are devoted to general pathology and the consideration of the chief pathological processes which are in all cases intelligibly described and carefully discussed. In cases where various explanations or theories have been propounded these are usually presented in a clear and concise manner and the balance of evidence is indicated. The scope and objects of pathology are first outlined and the causes of disease discussed with reference to their pathological significance. A chapter (No. II.) is devoted to the progressive and retrogressive changes. The processes of hypertrophy, hyperplasia, and regeneration are described. The various necroses, degenerations, and infiltrations are next discussed and the current views of their origin and significance are indicated. In the chapter on Neoplasms the various forms of new growth are briefly described and the recent important work on the cytology of malignant tumours is given in some detail; there is also an account of several of the theories as to the genesis of tumours. The description of inflammation is clear and concise, the vascular changes associated with it are described in greater detail than those of the tissue cells, while the process of suppuration might also with advantage be given in greater detail. The pathology of infection and of parasitism is given in Chapter V. The various organisms are described, their biological characters are given, and the lesions produced by them are outlined. The complex problems of immunity are dismissed with but short consideration, although reference is made to Ehrlich's side-chain theory, to Metchnikoff's doctrine of phagocytosis, and to the occurrence of opsonins as described by Wright and Douglas. A useful chapter is that devoted to fever and pyrexia; the changes in fever, the disorder of metabolism, and the varieties of fever are described, while the theories of the nature of fever are given at considerable length and critically examined. In like manner œdema and dropsy are carefully presented and the results of recent experimental work are given and applied to the discussion of the theories of œdema formation.

The remainder of the book is devoted to special pathology, the diseases of the various systems and organs being considered. Here the limitations of space are more apparent, for many important conditions are discussed with little more than passing reference. Curiously enough, some of the rarer conditions are given more importance than some of those of more common occurrence; for example, the account of achondroplasia extends to nearly two pages, while to pleurisy is accorded barely a page. Some of the chapters in this part of the book are, however, highly commendable, among which we may mention that on disorders of metabolism, where among other things the pathology of gout and diabetes mellitus is given, and that on diseases of the urinary system where the problems concerned in albuminuria and uræmia are carefully considered. Asthma and emphysema are well discussed, diseases of the pancreas receive considerable attention, and the results of recent researches are briefly summarised or references are given to them. In general, Professor Hewlett's accounts of pathological processes and his discussion of hypotheses or theories are better than the descriptions of the pathological anatomy of some of the tissues and organs, which are often meagre and incomplete, and might with advantage be lengthened in a subsequent edition. The only illustrations are those of microscopical appearances, and these are mostly reproductions of micro-photographs, most of which are satisfactory and illustrate the histological details of some of the conditions described.

This book should prove of value to the student. Taken in conjunction with a study of morbid anatomy in the post-mortem room, and of morbid histology in the laboratory, it should afford him a useful acquaintance with some of the fundamental facts of pathology without which a rational study of medicine is impossible. We can commend it as a useful elementary text-book on the subject.

Problems in Animal Metabolism. By J. B. LEATHES, M.B., B.Ch. Oxon., F.R.C.S. Eng. London: John Murray. 1906. Pp. 205. Price 7*s.* 6*d.* net.

THIS work represents a course of eight lectures delivered in the physiological laboratory of the University of London in 1904. Perhaps their scope is best set forth by giving the titles of the lectures: Physiological Chemistry and Metabolism; Assimilation and Syntheses of Carbohydrates; Catabolism of Carbohydrates; Assimilation and Syntheses of Fat; Catabolism of Fat; Assimilation and Syntheses of Proteids; Catabolism of Proteids; and Metabolism of Cyclic Formations. The last lecture is one of the most interesting of the series, as it deals with guanidine, kreatine, arginine, histidine, the purin bases, uric acid, and tyrosine, and their allies in the metabolism of the body.

These lectures are intended to point out that the study of animal metabolism is daily becoming less the study of the sum-total of chemical change in the body and more the study of the individual chemical reactions, the items that go to form the final sum. However simple and comprehensive the term metabolism—a word coined by Schwann—it includes some of the most intricate and inaccessible of natural phenomena. The ideal goal of physiological chemistry is still a long way off, but in these lectures we have for the thoughtful student an excellent representation of what has been done up to the present in this difficult department of study. In no department, perhaps, has the progress effected been greater than in the chemistry of the carbohydrates; indeed, the chemistry of the carbohydrates has become a problem in geometrical permutations, and most of the possible permutations have been identified and most of these synthesised. Even the colour tests for proteids—long nothing but empirical tests—have provided a means, when rightly studied, of throwing light on the constitution

of the proteid molecule and the same may be said of the products of gastric and pancreatic proteolysis. But even when all is said and done, what we obtain is clearer views as to the composition and constitution of the material in which the chemical processes of life are carried on, and not that the chemical processes themselves are clearer for what has lately been accomplished in physiological chemistry. After all "no laboratory can rival an animal cell." The immense importance of ferment action is insisted on. We may recall the observation of Ludwig that physiological chemistry may some day prove to be a chapter in the chemistry of catalytic action. Indeed, the extension of the idea of enzyme action into all phases of metabolic activity has been to effect a revolution in physiological chemistry.

To appreciate fully the importance of the variety of problems set forth the reader should have a good all-round knowledge of physiology and in addition should be conversant with organic chemistry in its modern aspects and developments. Perhaps the student of medicine would find it advantageous in studying the problems of metabolism if he made a point of reading as an introduction the chapters on cognate subjects in "Recent Advances in Physiology and Bio-Chemistry," edited by L. Hill.

These lectures are most comprehensive and present a very explicit account in the English language of the subjects with which they deal.

Syphilology and Venereal Disease. By C. F. MARSHALL, M.D., M.Sc. Vict., F.R.C.S. Eng., late Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars; formerly House Surgeon to the London Lock Hospital. London: Baillière, Tindall, and Cox. 1906. Pp. x.–509, demy 8vo. Price 10*s.* 6*d.* net.

THE author reminds us that since the work on Syphilis and Local Contagious Disorders written by Berkeley Hill and Arthur Cooper appeared about 25 years ago there has been no book published in England dealing in a systematic manner with syphilis and venereal diseases. Of late much light has been thrown on the pathology of syphilis by the experimental inoculation of monkeys by Metchnikoff and Roux, Neisser, Finger, and others, and by the discovery of the spirochæta pallida by Schaudinn and Hoffmann; an account of the research work is found in Dr. Marshall's pages. The important subject of parasyphilis, the conception of which originated with Fournier; the more recent evidence with regard to the question of the transmission of syphilis to the third generation; the question of paternal heredity; the syphilitic origin of general paralysis; the etiological factor of syphilis in arteriosclerosis, aneurysm, Bright's disease, cirrhosis of the liver, epilepsy, and other disorders of the nervous system; and other problems in syphilology are sufficiently discussed in this book. The portion dealing with syphilis is based chiefly on the teaching of Fournier and his followers: that dealing with gonorrhœa on the writings of Finger, Neisser, Jadassohn, and Balzer. On controversial points the author gives his own opinions. He emphasises the importance of syphilis and gonorrhœa as etiological factors in disease. When it is remembered that they are probably the oldest diseases which afflicted mankind, that they are both very contagious, that syphilis is the most hereditary of all diseases, and that gonorrhœa is the cause of a large proportion of the diseases from which women suffer, it is, as the author says, "difficult to overestimate their importance."

In the historical survey of syphilis Dr. Marshall tells us that the disease appears to have been known among the Hindus 1000 years B.C. and, on the authority of Klein, he states that mercury was used by the Hindus for the treatment of syphilis. Dr. Marshall says that Zambaco found bones with apparently syphilitic lesions in the ancient necropolis of Cairo showing that syphilis probably occurred among the Egyptians. According to Dabry the oldest evidence of syphilis is found among the Chinese. In 2367 B.C. the Emperor Hoang-ti collected the medical writings which were then existing, and these have been translated by Dabry who states that the Chinese were acquainted with syphilis and treated it with mercurial inunction, that they differentiated between syphilis and gonorrhœa, and that they recognised the hereditary transmission of syphilis. Dr. Marshall writes that the existence of syphilis in prehistoric times has been assumed by the discovery of human bones showing signs of syphilitic lesions. At Solutré, where prehistoric human remains have been found, a woman's skeleton was found with nodes on the tibia which were regarded as syphilitic by Virchow.

The section on the pathology of syphilis brings out all the points very clearly before the reader. The bacteriology, the experimental inoculation in apes, the experiments in serotherapy, and the questions of reinfection and of reinfection in hereditary syphilis are all thoroughly gone into and discussed in a most interesting manner. At pages 306 and 307 the author gives the details of his scheme for the treatment of syphilis; the whole treatment is by metallic mercury, in the form of pill, gray oil injections, or inunction. The main objection to this programme is the number of years over which the treatment is spread. The three sections on parasyphilis, which is, perhaps, better called quaternary syphilis, are most instructive reading. The author quotes Ferrier's suggestion that the terms cerebral tabes, spinal tabes, and cerebro-spinal tabes should be substituted for general paralysis, locomotor ataxy, and tabo-paralysis. In a most useful appendix are given the methods of staining the spirochæta pallida, the method of staining it in sections, and the methods of staining the gonococcus. There is also a list of the chief preparations of mercury used for mercurial injections, with the dose and percentages of mercury in each and of the chief substances used for injection in gonorrhœa. The author likewise gives details of Zittmann's treatment of chronic rebellious cases of tertiary syphilis. With regard to the treatment of gonorrhœa in the male the wise rule is laid down that the urethroscope should never be used in acute or recent cases of urethritis. It is especially indicated for simultaneous diagnosis and treatment and should not be passed an unnecessary number of times for purposes of diagnosis only.

The book is up to date and we congratulate the author on its appearance. The print and binding are good and it is illustrated with five plates which are arranged at the beginning and at the end of the volume.

Notes on Blood-Serum Therapy, Preventive Inoculation and Toxin and Serum Diagnosis, for Veterinary Practitioners and Students. By WALTER JOWETT, F.R.C.V.S., D.V.H., formerly Demonstrator of Comparative Pathology and Bacteriology in the University of Liverpool. London: Baillière, Tindall, and Cox. 1907. Pp. 204. Price 5*s.* net.

So far as we are aware this is the first book published in this country dealing with the subject of serum treatment and vaccination as applied to veterinary medicine, and the author is to be congratulated upon his success in giving a fairly complete account of this branch of research. The study of comparative pathology may do a great deal to throw light upon dark problems in human disease and medical men may find food for reflection in much that is contained in this little book. For example, the facts ascertained as to the diseases of sheep known as louping ill and braxy reveal a curious relation of immunity to season of the year, animals being immune to each of these diseases for certain months, but the season of protection not being the same for both maladies. In veterinary as in human

therapeutics it would seem that serum treatment proper is of but limited use, more being accomplished by protective vaccination against infective conditions. A long list of diseases is attributed to the action of infective agents so small as to be invisible even under the highest available powers of the microscope; this includes rabies, variola, and foot-and-mouth disease, all of which may affect mankind, as well as the epizootics, bovine contagious pleuro-pneumonia, rinderpest, and South African horse sickness. Probably swine fever and canine distemper are also due to invisible organisms. Quite a considerable number of epizootic diseases are due to protozoan organisms; such are Texas fever, red-water fever, equine biliary fever, and canine malignant jaundice, all of which are technically piroplasmoses; and several forms of trypanosomiasis, such as surra and nagana. Spirochætæ—whatever may be the true biological position of these organisms—cause disease in geese and fowls, while the author has found them invariably present in cases of canker and grease in horses. Many other points of interest are contained in the book before us, which is also adequately illustrated. We are sure that it will be appreciated by those for whom it is intended.

LIBRARY TABLE.

A Text-book of Botany for Secondary Schools. By J. M. COULTER, A.M., Ph.D., Head of the Department of Botany at the University of Chicago. London: Sidney Appleton. 1906. Pp. 365. Price 5*s.* net.—This book is based upon some previous works of the author who has availed himself, as he states in the preface, of the opinions of many experienced teachers of botany. The book is divided into 25 chapters. Commencing with a description of the structure, function, and relationship of plant organs the author goes on to describe the various divisions of the vegetable kingdom and gives a short account of plant breeding and forestry. The four concluding chapters are devoted to "plant associations" or the way in which plants become grouped together according to conditions favourable to their growth. Those who are familiar with the author's previous works will be prepared to hear that the present text-book is an excellent one, and it is made the more valuable by being the outcome, as we have already said, of the coöperation of the author and other teachers. Practical work is insisted upon, the author emphasising the need of the supplementary aid of the teacher, the laboratory, and field work. Used in this way the book will be found of great value, while the style and plan of the work also make it suitable for general reading, and the clearly printed illustrations, of which there are 320, greatly elucidate the text.

War with Disease, being a Series of Lectures on Preventive Medicine delivered to the Officers and Non-Commissioned Officers of the Cavalry Brigade in Ireland under the Command of General M. F. Rimington, C.B. By FREDK. F. MACCABE, M.B. Dub., Medical Officer of the South of Ireland Imperial Yeomanry. Dublin: Dollard, Limited, naval and military printers. 1906. Pp. 78. Price 6*d.* net.—Although of no great size, this book contains a mass of information set forth in so admirable a style that if the truths embodied in it are borne in mind epidemic diseases peculiar to an army in the field should have their power for evil vastly reduced. General Rimington has written an excellent introduction addressed to his men, after which the work opens with the subjects of the physiology of the blood and digestion, and of the bacteriology of the diseases incidental to soldiers. The remarks on the water-supply of troops are excellent and the author gives a telling instance in his own person of how a medical officer can influence the minds of soldiers and cause them to take the necessary precautions against enteric fever and dysentery. He contrasts the returns of the deaths from disease in our South African War with those which occurred among the Japanese in their war, much to our disadvantage. Lecture II. deals with diseases of the lungs and zymotic and venereal affections. His remarks on the preventive measures to be undertaken against the last class of disease are peculiarly apposite and, moreover, are quite up to date, as they include the most recent investigations of Dr. Roux and Professor Metchnikoff. In Lecture III. tropical diseases are considered. We are glad to see that the use of the "cold tub" as an exciting cause of disease in the tropics is insisted on. Malaria, yellow fever, Malta fever, tick fever, cholera, and dysentery all receive due attention. The last lecture is devoted to personal and camp hygiene. The work is replete with valuable hints for the combating of disease and has given us much pleasure in perusal.

1. *Examination Questions for the Diploma of Public Health.* By HUGH R. JONES, M.D., D.P.H. Cantab. London: Baillière, Tindall, and Cox. 1906. Pp. 96. Price 2*s.* 6*d.*—2. *Five-figure Mathematical Tables for School and Laboratory Purposes.* By A. DU PRÉ DENNING, M.Sc. Birm., B.Sc. Lond. London: Longmans, Green, and Co. 1906. Pp. 22. Price 2*s.*—3. *Elementary Science applied to Sanitation and Plumbers' Work.* By A. HERRING SHAW. Manchester: The Artistic Printing Co., Limited. London: The Sanitary Publishing Co., Limited. 1906. Pp. 234. Price 2*s.* 9*d.*—As the subjects of these three small books have several points in common it will be convenient to consider them in one notice. 1. Dr. H. R. Jones has compiled a useful selection of about 470 examination questions arranged under 15 headings, of which the first five are Chemistry and Physics, Practical Bacteriology, Practical Microscopy, Practical Chemistry, and Sanitary Inspection. It is not a "cram book," as it does not give answers to the questions or hints or "tips" of any kind, but it supplies excellent material for practice or for self-examination by candidates before presenting themselves for the final ordeal. Two of the questions seem to us to be rather conjectural in their scope and therefore unsuitable for examination purposes. One of them (on p. 24), is "Give an account of atmospheric electricity and its influence on health"; the other (on p. 47) is as follows: "The death-rate from violence is increasing. Is there any probable explanation?" 2. Mathematical tables may be appropriately mentioned here, as the first question in Dr. Jones's treatise just referred to is, "What are logarithms?" Mr. A. du Pré Denning's object is to exhibit the usual five-figure tables of anti-logarithms, logarithms, circular functions, squares and cubes, and so on, on pages of somewhat large size, their type surface being a close approximation to that of THE LANCET. This arrangement, as he points out, naturally requires less turning over of pages. Tables of atomic weights, differential coefficients, electrical units, and various numbers in frequent request are appended. 3. Mr. A. Herring Shaw's "Elementary Science" is primarily intended for students who may be preparing for the examinations of the Royal Sanitary Institute of Great Britain and for certain examinations open to plumbers. It is an excellent compendium of the information required for such purposes, is copiously illustrated, and contains numerous exercises and problems, fully explained and worked out, corresponding to many of the examples given by Dr. Jones in his "Examination Questions" under the headings of Physics, Air and Ventilation, Sewage, and Miscellaneous.

JOURNALS AND MAGAZINES.

The British Journal of Tuberculosis.—The first number of this new publication has now been issued. The object of the journal is to deal with the many medico-sociological problems which gather round tuberculosis, more particularly

the pulmonary variety. Tuberculosis is not only a puzzle in pathology but appeals to all sorts and conditions of men as a question of world-wide importance. As we have already indicated[1] the journal will be issued under the editorship of Dr. T. N. Kelynack and the contents of the first number demonstrate the keen interest taken in the matter by the leading authorities. After some able editorial remarks Professor T. Clifford Allbutt contributes a paper entitled "The Study of Tuberculosis: A Retrospect," in which he vividly sketches the lines upon which the treatment of the disease has been conducted hitherto and then gives a brief outline of the evolution of the hygienic treatment. This is followed by an article by Dr. R. W. Philip headed "An Anticipation," dwelling among other matters on State and municipal responsibility. Dr. Philip considers notification to be a sound and necessary measure, and is confident that compulsory notification must be appealed to for the ultimate solution of the problem of tuberculosis. He refers to the fact that the Local Government Board for Scotland has declared in favour of notification. The result of this action will be watched with interest. Several pages are then occupied by a "Discussion" on the care and control of the consumptive poor. This is opened by Sir Richard Douglas Powell who deals with the disease as occurring in England and Wales. He considers the subject of practical reform and its difficulties. He says that it must, in truth, be confessed that at the present time there are no adequate means of treating the poor afflicted with consumption. The village medical practitioner or out-patient physician may make an early diagnosis but not one-hundredth of the cases so recognised can be taken in hand for proper treatment. He urges that co-ordination of effort on the part of philanthropic and municipal bodies is essential. He considers, however, that to adopt compulsory notification is doubtfully justifiable whilst there are no means of fulfilling its logical corollaries. Sir Richard Douglas Powell's remarks are characterised by thoroughness and sound common sense and should be carefully considered by medical officers of health before recommending the adoption of compulsory notification. Dr. Byrom Bramwell continues the discussion, taking the disease as it is seen in Scotland and the measures which are proposed for its control. He also urges the necessity of a combined effort for dealing with the disease. Naturally, he has much to say on the circular of the Local Government Board for Scotland in reference to compulsory notification. Dr. Bramwell is of opinion that such a measure is essential if a thorough and determined effort is to be made to grapple with pulmonary tuberculosis and other forms of tuberculous disease. None of the objections which have from time to time been brought against compulsory notification are, in his judgment, of any real weight. Voluntary notification seems to him to be merely a makeshift and a compromise. Sir John W. Moore discusses the control of the Irish consumptive poor and although he says but little about compulsory notification appears to favour it. He gives a brief account of the measures available in Ireland for the relief of tuberculosis among the poorer classes. Amongst the original papers may be noted one on Tuberculosis and National Efficiency, by Sir Lauder Brunton; and one on Climate as a Factor in the Treatment of Tuberculosis, by Sir Hermann Weber. Other contents are descriptions of certain institutions for the tuberculous, including the King Edward VII. Sanatorium at Midhurst, remarks on health stations, and reviews and notices of books. We congratulate the editor on the success of the first number and once more wish our new contemporary every success.

[1] THE LANCET, Jan. 5th, 1907, p. 63.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on Jan. 10th, Mr. HENRY MORRIS, the President, being in the chair.

Some recommendations of the library committee for enlarging the library by alterations to adjoining rooms were approved and adopted.

Sir JOHN TWEEDY presented on behalf of Mr. Sidney Young a transcription of the Book of Ordinances dated 1435 of the Guild of Surgeons, with an illuminated frontispiece by Mr. Austin Travers Young. The following motion was carried:—

That the thanks of the Council be and are hereby given to Mr. Sidney Young, F.S.A., for his gift of a transcription of the Book of Ordinances dated 1435 of the Craft of Surgery of the City of London, and to Mr. Austin Travers Young for the illuminated frontispiece representing in proper colours the arms given to the craft by King Henry VII. in the year 1492.

Letters were read from Mr. W. Watson Cheyne and Mr. Frederic S. Eve resigning their seats on the court of examiners as from the completion of the pass examination in surgery commencing on Jan. 11th, in anticipation of the expiration of their period of office on March 20th. The PRESIDENT stated that the vacancies on the court of examiners occasioned by the resignations of Mr. Watson Cheyne and Mr. Eve would be filled at the meeting of the Council in February. Mr. Watson Cheyne does not propose to offer himself for re-election.

In reference to the letter from the Liverpool School of Tropical Medicine, asking the views of the College on the scheme for the extension of the course of instruction at the school, it was decided to state that the Council is of opinion that so far as the scheme relates to the subjects of tropical medicine, tropical surgery, and tropical hygiene it deserves approval. The Council notes with satisfaction that it is proposed to afford greater opportunities for clinical observation than exist at the present time.

Course of lectures for 1907.—The following are the arrangements for the annual course of lectures to be delivered at the Royal College of Surgeons. The lectures will commence on Feb. 4th and will be delivered on each Monday, Wednesday, and Friday, until March 22nd, with the exception that during the week in which the Hunterian festival takes place the course will be suspended.

Erasmus Wilson lectures.—Mr. Willmott H. Evans will deliver one lecture on Leucoderma and Analogous Pigmentary Changes in the Skin on Feb. 4th; Mr. Reginald C. Elmslie, one lecture on Injury and Deformity of the Epiphysis of the Head of the Femur (Coxa Vara) on Feb. 6th; and Mr. Kenneth W. Goadby, one lecture on the Etiology and Pathology of Pyorrhœa Alveolaris (Rigg's Disease) on Feb. 8th. During the week following this lecture the Hunterian festival will be held, the course being resumed on the following Monday.

Arris and Gale lectures.—Mr. J. Faulkner Dobson (Leeds University) will deliver two lectures on the Lymphatic System of Certain Portions of the Alimentary Canal, on Feb. 18th and 20th, and Dr. Bertram L. Abrahams one lecture on Some Clinical Applications of Physiology on Feb. 22nd.

Hunterian lectures.—These lectures will be delivered by the following Hunterian professors: Mr. W. Sampson Handley, two lectures on the Pathology of Melanotic Growths in Relation to their Surgical Treatment, on Feb. 25th and 27th; Mr. J. W. Thomson Walker, two lectures on the Renal Function in its Relation to Surgery, on March 1st and 4th; Mr. J. Howell Evans, two lectures on Cysts and Cystic Conditions of Embryonal Origin, on March 6th and 8th; Mr. William Wright, three lectures on the Prehistoric and Early Historic Inhabitants of England, on March 11th, 13th, and 15th; and Mr. Cecil F. Beadles, who will conclude the course, has chosen the two following subjects for his three lectures to be delivered on March 18th, 20th, and 22nd: (*a*) Anatomical Variations in the Larger Arteries of the Brain and their Medical and Surgical Aspects; and (*b*) Aneurysms of the Larger Cerebral Arteries with Special Reference to their Possible Diagnosis and Treatment.

THE LANCET.

LONDON: SATURDAY, JANUARY 19, 1907.

The Medical Inspection of School Children.

IN the closing days of last year we received the report of the Public Health Committee of the London County Council submitting the report of the medical officer of health for the county for the year 1905. This interesting volume, which is dealt with at p. 185 of our present issue, contains as one of its appendices the report of the medical officer (education) for the year ended March 31st, 1906, and this appendix has been issued as a separate report which now lies before us. In the summer of 1905 the London County Council appointed 20 local assistant medical officers or medical inspectors, who began their duty on Sept. 1st, 1905. The duty of these officers, in the words of the report, is "to visit the schools of one district, spending three school sessions weekly in such work and making a weekly report on the schools visited." The school session, we gather from another portion of the report, is half a day—a scholastic day, that is—so that three school sessions would be about ten hours, and on an average six sessions are devoted to each school—that is, about two sessions to each department—viz., boys, girls, and infants; but among the poorer classes sometimes as many as three or four sessions may be given to any one department. The first selection of the cases to be seen is made by the teachers, but, as the report states, it is obvious that only very marked cases of defect are likely thus to be noticed. The early stages of the disease are therefore not detected. Some teachers, we learn, regard the medical officers' work as inquisitorial, and a few of the non-provided school teachers object to the medical inspectors' visits. We note that the report points out the difficulty of following up the cases, a difficulty which must be obvious to anyone who has had any experience in medical work among the poor. One interesting feature of the report is the remarks upon the conditions of school buildings and surroundings with respect to lighting, ventilation, heating, sanitation, and furniture. As regards these important hygienic armamenta the reports of the local assistant medical officers are divided into those dealing with provided schools and non-provided schools. As is only to be expected, provided schools come out far the best, but without wishing to embark upon a singularly embittered controversy we must point out that a provided school obtains all its money from the rates without difficulty, which is not the case with a non-provided school. To turn to some of the detailed reports, that dealing with dental conditions is interesting and at the same time somewhat painful reading. The percentage of caries is very high and this, together with alveolar abscess, is a fruitful source of septic poisoning and chronic gastric disorder. 245 children examined at the Michael Faraday school had on an average 3·9 carious temporary, and 2·8 carious permanent, teeth each, while 9·3 per cent. had alveolar abscess or purulent fistulæ. Another interesting feature of the report is the section dealing with the physically defective in ordinary schools. Out of an attendance of 14,098 children there were 105 cases who were physically defective and of these 31 were suffering from rickets. Rickety children apparently come from a special class, the existence of which is due to the general want of appreciation of the hygienic needs of childhood by ignorant mothers. As Mr. N. BISHOP HARMAN is quoted as saying, "The children are of a respectable class. They are well fed and clothed, but are altogether a flabby and pappy lot. Almost all of them have palpable glands in the neck. The head teacher returned over 100 as defective. This seemed absurd until the children were examined. Then the oft-repeated note of 'delicate' was justified. The children are too respectable to play in the street. They have no near park or fields. Their back gardens or house-rooms are small, so that they do not compare favourably save in cleanliness with children in poorer quarters who play freely in the open air. The teaching of hygiene is needed in the district."

It is interesting to note that a medical examination has recently been made in Liverpool of three large council schools in that city and some results of the examination were given in the letter from our Liverpool correspondent in THE LANCET of Jan. 12th. To mention some other points not referred to by our correspondent these three schools are respectively representatives of three classes, A, B, and C—A being a type of the best class council school where the parents of the child were well-to-do; B, a school where the parents were mostly of the labouring classes or small shopkeepers; and C, a type of the poorest classes where the parents belong almost entirely to the employed or casual labour section. The medical inspector was Mr. A. S. ARKLE and we note that he mentions that the children in the poorest school—namely, C—come out more healthy than those of schools of the types A and B. Mr. ARKLE suggests that the children in C class mostly live out-of-doors and so are hardier than children who are rather better off, a conclusion which is curiously like that of Mr. HARMAN.

The question of medical inspection of school children is one of the utmost importance, not only in its present aspect as regards the health of the community now, but also when we look towards the future and think that in 20 years time those of our present scholars who are then alive will be full-grown subjects of the empire. On them in great measure will depend the prosperity of our country. The system of medical inspection has not as yet been at work in this country for a long enough period to enable conclusions of any real value to be drawn, but in Germany, at all events, the results are obviously valuable, and there the system has been at work for some years. The chief difficulty, of course, which medical inspection has to deal with is ignorance—that is to say, ignorance of parents, ignorance of teachers, and ignorance of children themselves. The ignorance of the teachers is gradually being abated but the ignorance of

parents will take many years to overcome. Take, for instance, the case of measles. The average parent has no idea that in by far the majority of cases the dangerous time for the child is not while the rash is out but after it has disappeared. Over and over again we have known parents in deliberate disregard of their medical attendant's advice let their children go out to sit on a cold doorstep directly the measles rash has disappeared, with the almost inevitable result that broncho-pneumonia supervened. Teachers can be, and are, taught simple hygienic rules. To teach the parents is extremely difficult, if not impossible under present conditions, but unless medical inspection of schools can include some method of making parents obey some of the simpler rules of hygiene its benefits, great as they are, will be but a tithe of what they might be.

The Control of the Sale of Potable Spirits.

WE are very slow in this country in adopting reforms, for our reformers are often too extreme and it takes a long time to educate public opinion even half way. This is particularly the case as regards temperance, the thick-and-thin supporters of which may be divided into two classes—one believing in prohibition and determined to stop at nothing less, the other convinced that the proper method of reform is to place all sorts of restrictions on the public through the licensing laws. Both combatants pay little heed to the possibility of improving the liquor, which they are generally prepared to contend is bad at the best.

A correspondent—in the course of some remarks upon our article last week dealing with the alleged settlement of the question, What is whisky?—has brought to our notice some important facts concerning the control of the sale of potable spirits. The self-governing States of the British Empire have travelled a long way farther in real temperance reform than the Mother Country, and this time it is Australia that shows the way. The Customs and Excise regulations for spirits in the Commonwealth were much the same as in this country until a few months ago. The duties were somewhat higher and the margin between imported and home-made spirit a little wider, as befits a country prone to protectionist ideas, 14*s.* and 13*s.* per gallon respectively, against 11*s.* 4*d.* and 11*s.* Partly to increase the protection to the home distiller, about the wisdom of which there may be difference of opinion, and partly on moral and social grounds, about which there can be none, very considerable changes were effected last session. To begin with, the import duty was raised to 15*s.* per proof gallon. Then the Excise taxes were lowered to from 10*s.* to 13*s.*, but it is in the graduation that the merit comes in. The lowest rate is applicable only to pure grape wine brandy and malt whisky, which will be admitted, according to predilection, as the best or least dangerous kinds of these forms of alcohol. We will quote intact the clause of the Act relating to whisky: "Whisky, distilled wholly from barley malt by a pot-still or similar process at a strength not exceeding 35 per cent. over proof, matured by storage in wood for a period of not less than two years, and certified by an officer to be pure malt whisky, per proof gallon 10*s.*" The next rate in the scale is for blended wine brandy which must contain not less than 25 per cent. pure grape wine spirit and pays 11*s.* Similarly blended whisky, distilled partly from barley malt and partly from grain, but containing not less than 25 per cent. pure barley malt spirit, pays 12*s.*, as do also rum distilled from molasses and pure gin. Spirits without ancestry or character are submitted to a tax of 13*s.* The graduation is not apparently very wide, but it must be borne in mind that with the possible exception of high-class brandies there is no spirit that costs 3*s.* a gallon to manufacture in its natural state; consequently the worst spirit that has to pay 13*s.* costs more by the time it is cleared from bond than the best that has only to pay 10*s.*, and thus the difference ought to be quite prohibitive as regards the former. We agree here, however, with our correspondent that "the system adopted by this Act is far from perfect." The best whisky, it is true, is distilled from barley malt; medium and passable stuff is obtained from maize and rice; and then there is a quick descent to potatoes, damaged grain, and even decayed and rotten fruit and vegetable matter. The last is supposed to be for methylation and industrial purposes, but there is no guarantee that some of it is not used for human consumption as a beverage. Besides, barley may be inferior or damaged, and the alcohol manufactured from it more mischievous than that obtained from sound grain of other descriptions, but so long as there is a margin of 2*s.* per gallon the chances are that the former will be used in preference, and the public be a loser rather than a gainer. The position is partially provided against by the time limit in the clause already quoted, which is really far more important than the graduated tax. Under the new Act no spirits are to be cleared for consumption unless they have matured in the wood for at least two years; and as regards importation, if spirits have not remained in bond during that length of time in Australia evidence must be afforded that they have complied with this condition elsewhere. Now good spirit improves with keeping and bad does not become good so there is a reasonable guarantee of good material if it has to run the gauntlet of at least a two years' novitiate.

But while the principle of this legislation is thoroughly sound, there are several reasons why its applicability is hardly the same in the United Kingdom as in Australia. One of these is the growing importance of alcohol in industry and the arts which renders it advisable to impose as few restrictions as possible on actual manufacture, whatever subsequent restraint may be placed on consumption. The real remedy in Great Britain is the time limit. If bad spirit will not mature so as to maintain any sort of fitness as a beverage it should be made so dear that no liquor dealer, wholesale or retail, could afford to sell it. This ought to be easily accomplished bearing in mind once more the low prime cost of most spirit. Let us take the existing duty as per basis, then instead of charging 11*s.* per gallon on all proof spirit, irrespectively of quality or age, let us suppose the charge to be made dependent on the spirit having remained in bond for four or even five years. If for every year short of that time there were added another shilling for duty, the clearance of inferior distilled spirit would in the ordinary commercial sense become prohibitive. The graduation indeed

might be carried further, because alcohol goes on improving in quality long after five years, and 6*d*. per gallon per annum might be subtracted from the 11*s*. for a further period of three or four years at any rate. There is still one doubtful point that only practical experience is likely to clear up and this point our correspondent puts in the following question. Would the matter of mere cost always be the controlling motive? There are plenty of blended whiskies on the market to-day guaranteed to be three, five, or seven years old which contain spirit manufactured within the 12 months. Blenders contend that this is no fraud, because they add spirit of greater age than the guarantee and so make the average right. But even a little of the new spirit might carry with it unwholesome qualities, and a graduated tax ought to have excellent influence; if such a measure did not put an end to the practice the question could be considered of imposing absolute prohibition on spirit of less than a specified maturity.

Barmaids.

AMONG the many derelicts of the Parliamentary sessions of 1906, sacrificed, more or less, to political exigencies manifestly incapable of fulfilment, not the least important, in a social sense, was a Bill to restrict the employment of barmaids. We had occasion early last year to consider the bearings of this question at some length and in relation to a pamphlet in which the necessity for restrictive legislation was set forth; and we cannot but regret that this necessity was not brought under the notice of Parliament. It has been clearly established that the employment of young women as barmaids is in many respects objectionable, partly because it introduces them to an occupation which is seldom or never of a permanent character, partly because it often entails an amount of standing which is calculated to be injurious to health, and chiefly because it is attended with many temptations to drink and with many temptations to immorality. The temporary character of the employment depends, indeed, upon the obvious fact that young and good-looking barmaids are in demand as sources of attraction to the bars in which they are engaged; and that, as soon as they lose either their physical charms or a certain pertness which is perhaps incidental to the liquor traffic, they are liable to be dismissed in order to make room for successors who retain these characters. Even in the male sex, it is well known that employments for the young which are not educative, that is to say, which do not afford opportunities for learning some definite form of industry, and which cast adrift, at early manhood, those who have been engaged in them, are of very questionable value to the community; and hundreds of boys, who have been tempted into such occupations by the prospect of good wages and temporary employment, have had only too much reason to regret their choice. In the case of women, with marriage to a bread-winner as a natural goal, the temptation to embrace a merely temporary calling is even greater than with men; and the results, when the matrimonial goal is not attained, are likely to be even more disastrous. Even under the best conditions, the industry of the bar is but little calculated to be a preparation for discreet wifehood and motherhood, or for the nurture of children calculated to add to the physical and moral strength of the community. The barmaid is liable to be brought into intimate association with worthless and intemperate people, to be morally contaminated by much that she is compelled to see and hear, and to be forced to sacrifice her own sense of modesty and propriety to the demand of her employer that she shall make herself agreeable to his customers.

In these circumstances, there can be little doubt that legislation is required in the interests of the class of women more immediately concerned, or that such legislation would be regarded favourably by the public; but it is at least equally certain that it should be governed by careful consideration of all the consequences likely to be produced. The derelict Bill to which we have referred provided that, from the time of its enactment, no woman should enter for the first time upon the duties of a barmaid, and that only those should be permitted to continue in the employment who had already been so occupied for at least three months. A register of existing barmaids was to be constituted and placed under the control of the licensing justices and of the police, and licensed persons were to be prohibited, under heavy penalties, from employing in the capacity any women whose names were not upon this register; so that, as these women ceased, from various causes, to be available, the class to which they belonged would cease to exist. So far, the provisions of the Bill were reasonable, inasmuch as they would entail no hardship or loss of employment upon women already committed to the industry, and, indeed, would be calculated to increase their value; but here the reasonableness ends. The Bill further provided that nothing in its contents should prevent the wife or daughter of any licensed person from being employed as a barmaid upon the premises of such licensed person, and then subjected this provision to the condition "if the justices permit"; while a previous clause would give power to the justices, on the occasion of the annual renewal of any licence, to impose the condition that no barmaid should be employed on the premises, and, if the licensed person should refuse to assent to or should violate this condition, would allow the justices to refuse without compensation the renewal of the licence. In other words, it was gravely proposed to permit the daughters of publicans to serve as barmaids upon premises occupied by their parents and thus to engage in a form of industry deliberately condemned by the legislature as unfit for respectable women, while, on the other hand, it was proposed to subject the parental discretion in the matter to the absolute and irresponsible control of the licensing justices of the particular district concerned. There can be no doubt that under such a law the question whether the daughters of publicans should serve in their father's or mother's bars would be made a party one in many localities, and that the decisions of the justices upon the point would be governed by many considerations wholly irrelevant to the real merits of the case. The suggestion to admit parental responsibility as a general principle and then to override this responsibility by the decision of a casual bench of magistrates is equally inconsistent with liberty and with common sense. If it be improper to employ girls as barmaids, the impropriety is not diminished by the fact that they are the daughters of publicans; and no question which falls rightly under

parental control can be properly transferred to the decision of the licensing justices.

The whole question affords a fresh illustration, following many which have preceded it, of the inadequacy of present Parliamentary methods to meet the growing needs of a civilised community. In our elaborate social system new conditions which call for some adaptation to them of former laws, customs, or requirements are constantly arising; and we endeavour to meet these conditions by an adherence to methods of legislation which sufficed for the England of the STUARTS. Every Government department is aware of many directions in which law should be modified to meet the changing circumstances of the day; and every department alike shrinks from any endeavour to carry out what is seen to be necessary. There can be no doubt, of course, of the general wisdom of avoiding hasty legislation; but in this country we are fast falling into the very opposite error, and are permitting obsolete forms and superfluous precautions to stand in the way of changes which all admit to be required. The whole system of private Bills, of balloting, of blocking, and of many of the formalities of Parliament, is now far more operative in hindering useful measures of reform than in preventing changes for the worse; and it is high time that Parliamentary procedure was remodelled by the light of modern requirements. It ought to be rendered possible for the head of each of the great departments of the State to bring in a Bill containing any minor legislative changes shown to be necessary by the experience of the department over which he presides, to have these Bills examined and reported upon by a sufficiently large committee, and to have them pushed on to enactment by all the force of the Government. Mr. BURNS has lately told the House of Commons that the Local Government Board could not deal adequately with certain requirements about food until an amending Bill in relation to them had received the sanction of Parliament; and, as this amending Bill has perished along with others the public may still be poisoned with impunity. There are a score of questions as to which it is urgently necessary to increase the powers of the administration but as to which nothing is done, or probably will be done, until evils which might be nipped in the bud have become intolerable. And all this because the most crying administrative needs of the country are neglected or forgotten amid the bawling of politicians and of placemen.

Annotations.

"Ne quid nimis."

MALADVERTISEMENT.

ON more than one occasion under this heading we have commented upon the action of the Capsuloid Company in coupling the name of THE LANCET with the advertisement of their wares. In 1900 the Capsuloid Company sent to us specimens of hæmoglobin capsuloids. We analysed them at the time and stated in THE LANCET of August 11th, 1900, that they contained, as they then did, whatever they may do now, hæmoglobin in an oily excipient. The Capsuloid Company having obtained this testimonial, then flooded the press with advertisements setting forth the virtues of capsuloids as promoting the growth of the hair. They added, "Send for Free Hair Booklet and copy of what 'The Lancet' says." We called their attention to this, and after some time they altered this statement into "Send for Free Hair Booklet and copy of 'The Lancet's' statement." We have received many communications from various correspondents wishing to know if we in any way endorse the statement that capsuloids are good for the hair. We therefore wish to state distinctly that THE LANCET never said anything about hair or implied in any way that the hæmoglobin capsuloids had any influence upon its growth. The action of the Capsuloid Company in issuing these advertisements is a distinct fraud upon the public. They imply, and deliberately so, that THE LANCET recommended capsuloids for the growth of the hair. This is not true, and the advertisement as it stands is written with the deliberate intention to deceive.

ARMY MEDICAL SERVICES: THE RECONSTITUTED ADVISORY BOARD.

IN our issue of Dec. 29th, 1906, we were able to lay before our readers an official communication from the War Office giving an account of the constitution of the reconstructed Advisory Board for Army Medical Services. The new Board was to consist of, in addition to the Director-General as chairman, a civilian sanitary expert, a civilian physician, a civilian surgeon, and a civilian physiologist, an officer of the Royal Army Medical Corps specially qualified in sanitation, an officer of the Royal Army Medical Corps with special knowledge of tropical diseases, an officer of the Royal Engineers from the department of the director of fortifications and works, and the President of the Medical Board, India Office, as well as the Deputy Director-General, who will act as vice-chairman. Those representing the various positions above mentioned are as follows: chairman, the Director-General, Army Medical Service; vice-chairman, the Deputy Director-General, Army Medical Service; members, Colonel D. Bruce, C.B., F.R.S., M.B. Edin., R.A.M.C. (as expert in tropical diseases), Colonel G. K. Scott Moncrieff, C.I.E., R.E. (assistant director of fortifications and works), and Lieutenant-Colonel C. H. Melville, M.B. Edin., R.A.M.C. (as expert in sanitation). The civilian members are the following: Sir F. Treves, Bart., F.R.C.S. Eng., G.C.V.O., as civilian surgeon; Dr. J. Rose Bradford, F.R.S., F.R.C.P. Lond., as civilian physician; Dr. Louis C. Parkes, as civilian sanitary expert; Dr. M. S. Pembrey, as civilian physiologist; and Sir Charles A. Cameron, M.D. R.U.I., F.R.C.S. Irel., C.B., as representing Irish sanitation. The representative of the India Office is Surgeon-General A. M. Branfoot, C.I.E., I.M.S., retired; and the Secretary is Lieutenant-Colonel C. H. Melville.

ABORTION AMONG THE ANCIENTS.

THE declining birth-rate in France and many Anglo-Saxon countries has been much discussed recently chiefly from the modern ethical, sociological, and political points of view and not from the historical standpoint. An essay by M. Salomon Reinach, the eminent Parisian scholar, however, gives much information upon the subject of abortion in connexion with the morals and regulations of classical civilisation. He dwells upon the punishment stated by classic authors to have been inflicted in the Inferno in Hades upon women who had been guilty of the practice of abortion—a retribution, proved by various quotations, awarded to the criminals by the spirits of the children themselves in the Inferno. The evidence concerning the consideration by the ancients of abortion as a criminal act commences in Greece with the "Hippocratic oath" which says, "I will not give to any woman an abortive pessary." Galen tells us that abortion had been prohibited

by both Solon and Lycurgus; whilst Musonius, in a quotation preserved by Stobæus, says that the Greek legislators had forbidden women to practise such a thing and also to use any means for preventing conception. The "Apocalypse of St. Peter" discovered at Akhmin in 1886 contains a scene in which the souls of unmarried women who have terminated their pregnancies by abortion are represented as being in hell together with the souls of the infants, and the latter direct jets of fire against their mothers. M. Reinach considers that this view of the criminality of abortion was derived from the Greek Orphic doctrines and that abortion was not reckoned immoral by the early Christians, but a very early extra-canonical Christian document known as the Διδαχή—i.e., "Teaching (of the Apostles")—says: "Thou shalt not slay a child by abortion, nor what is conceived shalt thou destroy." Among nations or races who practised infanticide the prevention of childbirth does not appear to have flourished. There is one part of M. Reinach's argument which he develops elaborately but in which we are unable to agree with him. The description of the visit of Æneas to the underworld, which forms the principal subject of the sixth book of the Æneid, contains the lines (426–30):—

> Continuo auditae voces, vagitus et ingens
> Infantumque animae flentes in limine primo
> Quos dulcis vitae exsortes et ab ubere raptos
> Abstulit atra dies et funere mersit acerbo.
> Hos juxta falso damnati crimine mortis.
>
> Before the gates the cries of babes new-born,
> Whom Fate had from their tender mothers torn,
> Assault his ears; then those whom form of laws
> Condemned to die, when traitors judged their cause.
> —*Dryden.*

In his metrical translation Dryden has expanded the phraseology of the original and introduced some ideas not expressly mentioned by Virgil. M. Reinach interprets the passage in a very different manner. He is so far from accepting the imagery of "tender mothers" that in his opinion the wailing infants had been the victims of abortion. Considering the singularly lucid and unaffected style of the Æneid (there are some riddles in the Eclogues) the most easy and natural interpretation is that the infants had died while young without any specific reference to attendant circumstances. M. Reinach also seems to argue that because the French word "sein" means both "mammary gland" and "womb" therefore Virgil's "ab ubere raptos" may be taken to mean either "torn from the breast" or "torn from the womb." We cannot agree in this reasoning.

THE RESPECTIVE MERITS OF SEMMELWEISS AND OLIVER WENDELL HOLMES IN THE TREATMENT OF CHILDBED FEVER.

THE honour of priority in scientific discoveries is often claimed for more than one person and sometimes the balance of evidence is so even that posterity can never arrive at a unanimous verdict. The history of medicine supplies an instance of this kind in connexion with the prevention of puerperal fever—a disease which was once terribly rife in maternity hospitals but is now quite uncommon in hospital practice. In THE LANCET of August 4th, 1906, p. 301, we reviewed Dr. C. J Cullingworth's exposition of the part taken by Oliver Wendell Holmes, the American physician, in this great work, and afterwards, in our issue of Oct. 20th, p. 1090, we gave an account of the ceremonies at Budapest when the Hungarian memorial to Semmelweiss was unveiled. In estimating the respective merits of these two great men the views of Dr. Cullingworth find their natural complement in those of Professor T Clifford Allbutt of Cambridge, who has said: "The Benefactor to whom the world's gratitude and memorial are due is he who *makes the thing go*, an achievement which comes after heroic sacrifice and a life's devotion, as in the instance of Semmelweiss. That another man [O. W. Holmes] should have hit on the same idea, as some other man always has, is to that other man's great *personal credit* and he deserves the record in his biography, but if he did not expend himself upon it, and but for the man who did, the idea would have emerged and developed much later, I do not think he, but the effective person, deserves the chief honour."

THE DIRTY BLOTTING PAD.

IT may reasonably be doubted whether the highly besmudged blotting pad is innocent as regards disease germs. In the act of writing the blotting pad is commonly breathed upon and bacteriological experiment has shown that micro-organisms may be projected a long distance by the breath. Blotting paper being an absorbent of moisture any septic matter would be rapidly dried on it and reduced to a readily transferable substance. Inkpots, again, are nearly always left open and consequently dust readily gains access to them, carrying in its load of micro-organisms. These in their turn are transferred by the pen to the paper and thence to the blotting pad, where they are left high and dry to be scattered once more in the room on the smallest provocation. Some inks, of course, contain an antiseptic but it is not likely that all inks serve as germicides. It may be a counsel of perfection to lay down that the blotting pad should be a fresh spotless sheet every day but when infectious respiratory disease is endemic such a precaution would not be so fatuous as might be supposed. Apart from this, everyone appreciates a clean blotting pad which will dry the writing without smearing it. Often enough the blotting pad is one mass of blotchy characters and ink-stains representing a usage of days, weeks, or even months. In such a condition its function has not only come to an end, any further use of it invariably leading to smears and annoyance, but it must be also bacteriologically filthy.

THE USE AND ABUSE OF SODIUM BICARBONATE.

IN the whole range of drugs in common use there is perhaps none the pharmacological value of which is considered less open to question than sodium bicarbonate. It has enjoyed a wide vogue for many generations in cases of gastric pain and hyperacidity of the stomach. It is important, therefore, to notice in the *Bulletin des Sciences Pharmacologiques*, 1906, No. 10, a monograph by Dr. Léon Meunier in which the value of this classic remedy in allaying gastric pain is discredited. Dr. Meunier states that the action of the drug is generally explained in the following way. Gastric pain is due to an excess of hydrochloric acid, which causes no inconvenience during digestion owing to its absorption by the food. But when the stomach is empty the acid begins to exercise an irritating action upon the sensitive nerves of the mucous membrane. The acid is neutralised and as a result the pain is removed by the administration of bicarbonate of sodium at an interval of two, three, or four hours after a meal. Having doubts as to the validity of this theory Dr. Meunier set himself to investigate both clinically and chemically the part played by the drug. He found that in nearly every one of 16 cases the most severe pain was experienced when the hydrochloric acid in the stomach was at a minimum. As bicarbonate of sodium was uniformly successful in relieving the pain Dr. Meunier was led to attribute its beneficial action not to a mere neutralising effect but to the production of carbon dioxide which exerts a calmative effect on gastric pain. The acceptance of this hypothesis suggests the unsuitability of administering sodium bicarbonate alone as a source of carbon dioxide, since its therapeutic action is proportional to the quantity of hydrochloric acid present in the stomach and is liable, therefore, to great variations. Moreover, the saturation

of the hydrochloric acid by the sodium salt retards the progress of gastric digestion, as pepsin acts only in an acid solution, and it further retards intestinal digestion, as the acidity of the gastric juice has been shown by Pawlow to be the specific excitant of the pancreatic gland. This drug may thus reduce a patient to a state of alkaline cachexia which led Trousseau to utter the dictum: "The abuse of alkaline drugs has done more harm than the abuse of mercury." Dr. Meunier suggests that it is more rational to produce carbon dioxide in the stomach by means of tartaric acid and a mixture of carbonates, so chosen as to evolve the gas slowly and continuously without modifying the acidity of the gastric juice. The tartaric acid is prescribed in one gramme powders and the alkaline powders contain sodium bicarbonate 0·4 gramme, calcium carbonate 0·3 gramme, and hydrated magnesium carbonate 0·2 gramme. The patient is directed to add an acid and an alkaline powder separately each to half a glassful of water and when the pain commences to take alternately tablespoonful doses of the acid and alkaline draughts. Dr. Meunier has found that gastric pain is most readily relieved by this treatment, whereas the administration of the alkaline draught alone is much less efficacious. From clinical experience he concludes that the carbon dioxide acts as a sedative by accelerating the evacuation of food from the stomach.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

A MEETING of the council of this Fund was held at the Mansion House on Jan. 10th, under the presidency of the Lord Mayor, for the purpose of filling vacancies on the council and committees. Among those present were Lord Cheylesmore, Sir Ernest Tritton, Sir William Selby Church, Sir E. Durning-Lawrence, Sir Savile Crossley, Mr. F. H. Norman, Mr. J. Astley Bloxam, Canon Fleming, Dr. J. G. Glover, Mr. T. Bryant, Mr. A. Pearce Gould, and Mr. Wakley. Mgr. Howlett, the administrator of the Roman Catholic Cathedral at Westminster, was elected to fill the place of Canon Pycke, who has resigned by reason of age, and it was decided to ask the Bishop of Southwark to make a nomination in the case of a second clerical vacancy. Lay vacancies were filled by the election of Dr. James Andrews, Mr. C. E. Layton, Mr. Frank Debenham, Mr. A. G. Phillips, and Mr. A. Millar, conditionally upon their willingness to serve. Sir Frederick Treves, Mr. Frank Bevan, and Sir Joseph Dimsdale were elected on the Distribution Committee, and a new committee, to be called the Finance Committee, was constituted as follows:—Sir E. Tritton, Sir W. S. Church, Sir John Bell, Mr. J. H. Hale, and Mr. J. H. Buxton. Lord Cheylesmore and Mr. Pearce Gould were elected to the General Purposes Committee.

"JUDY."

THE old-established comic paper *Judy* has been, we are informed, taken over by an entirely new management, and the proof of the change of spirit and tactics will be seen in the issue of the paper bearing to-day's date. It has been represented to us by Mr. F. W. Vogt, the new editor, that our leading article last week, commenting without regret upon the conviction of the late editor and proprietor Edward de Marny, might interfere with the success of what is practically a new and perfectly clean newspaper, and Mr. Vogt, at the same time, has forwarded to us an advance copy of the first issue under his superintendence that we may judge of the accuracy of his words. We congratulate him and his staff, and no less the new proprietor, upon the result of their revolutionary work. Every one of the offensive and mischievous advertisements of which we complained has disappeared, and *Judy* has become a perfectly respectable old lady, without, we may add, losing any of her power to amuse. We wish Mr. Vogt good luck in his intention to regain for a widely-known and long-established newspaper the prestige of its earlier existence.

PRESENTATION TO MR. W. WATSON CHEYNE.

ON Dec. 21st, 1906, in the board room at King's College Hospital, Mr. W. Watson Cheyne was presented with his portrait by his old house surgeons and dressers as a permanent token of their esteem for his teaching and their regard for his scientific work. The presentation was made by Mr. Peyton Beale, as Mr. Cheyne's first house surgeon, on behalf of the subscribers. Dr. R. T. Hewlett moved a vote of thanks to the artist, Mr. W. C. Penn, for having produced such an excellent likeness, for it was greatly admired by all who had seen it. Mr. Cheyne expressed his thanks to the subscribers, saying that he should never forget how fortunate he had been in having such excellent workers in his wards.

THE EFFECTS OF EPIPLOPEXY FOR PORTAL OBSTRUCTION.

Talma's operation, or epiplopexy, has been performed with considerable success for the treatment of the portal obstruction and consequent ascites due to cirrhosis of the liver. A collateral circulation is established between the portal system and the veins of the abdominal wall and the obstruction is relieved. Opportunities for observing during life the anatomical results of operation must be few. At the meeting of the Société Médicale des Hôpitaux of Paris on Nov. 30th, 1906, M. Le Gendre and M. Deglos reported the following case. A man, aged 39 years, was admitted into hospital on Feb. 19th, 1906. About six years previously he was addicted to alcohol and suffered from gastro-intestinal troubles. In 1903 he was in San Francisco and had jaundice but the fæces remained coloured. Although he had no pains in the hepatic region gall-stones appeared to have been diagnosed and an operation was performed. Not finding any calculi the surgeon performed Talma's operation, although there did not appear to have been any signs of cirrhosis of the liver. The jaundice gradually diminished but six months later it recurred. In 1904 the patient returned to France where he was treated for 18 months without result by a number of practitioners. On admission there was deep jaundice, the urine contained an abundance of bile pigments, and there was obstinate constipation but the fæces were of normal colour. The liver was enlarged, the spleen was palpable, and there was intense pruritus. The patient's condition became worse; incessant and more and more violent itching prevented sleep in spite of all hypnotics. He wasted and his colour changed from bronze green to olive green. The liver dulness measured 19 centimetres in the nipple line. The consistence and form of the liver were difficult to estimate as its lower border was masked by a broad and thick layer which extended to the right and left of the scar of the operation. The spleen extended below the ribs and measured 18 by 11 centimetres. There was slight pyrexia, the temperature rarely rising above 100·4° F. Laparotomy was performed in June, 1906, by M. Hartmann. On dividing the abdominal muscles no increased vascularisation of the subcutaneous tissues was found, but on dividing the muscles an abundant venous network which became almost angiomatous on reaching the external surface of the peritoneum was observed. The hæmorrhage was so severe that it was not thought wise to proceed and the wound was closed. After the operation the patient was in a state of profound depression which was thought to be hopeless. But a fortnight later some diminution in the jaundice was observed. He recovered and was able to leave the hospital with some jaundice and the liver and spleen nearly as large as before. In November, 1906, the jaundice had completely disappeared from the skin and there was only a slight

yellowish discolouration of the sclerotics. The liver was smaller, the right hypochondrium was less full, and the hard consistence of the liver could be appreciated. The urine was slightly brownish and scarcely gave Gmelin's reaction. This case shows that epiplopexy may produce in three years an extensive collateral circulation between the portal and systemic veins. M. Le Gendre and M. Deglos attribute the beneficial effect of the operation to the "blood-letting," which they think may have considerably modified the vascular condition of the liver and diminished the pressure in the biliary canaliculi. The diagnosis was hypertrophic cirrhosis of the liver.

HOSPITAL MISUSE AND EXCESSIVE MEDICAL CHARITY.

A MEETING of the Marylebone division of the Metropolitan Counties branch of the British Medical Association will be held at the rooms of the Medical Society of London, Chandos-street, Cavendish-square, at 8.30 P.M. on Thursday, Jan. 24th, when there will take place the second of a series of discussions on "Economic Problems in the Practice of Medicine." The motion submitted will be—

That the development of properly organised systems of mutual assurance for the costs of illness offers the most readily available method of reducing the admitted evils of excessive medical charity and the misuse of hospitals.

The debate will be opened by Dr. R. C. Buist, Mr. H. W. Armit, Mrs. Scharlieb, M.D., Dr. L. S. McManus, and Dr. J. H. Keay.

SPONTANEOUS ABORTION OF SYPHILIS IN THE PRIMARY STAGE.

IT is generally accepted that in the absence of treatment the primary stage of syphilis is always followed by the secondary. At the American Association of Genito-Urinary Surgeons in New York last year Dr. R. W. Taylor of that city quoted Burnett's statement that in certain cases most typically Hunterian sores were not followed by secondary symptoms, and brought forward the following cases in support of this view. A Jewess, aged 14 years, had a typical indurated chancre of the lower lip, with a bubo of the size of a walnut. The secretion of the sore contained the spirochæta pallida in abundance. Mercurial plaster was applied but no constitutional treatment was adopted, as it was decided to await the development of systemic manifestations. The chancre subsided in about a month and then the bubo also underwent involution. Observation of the girl for eight months showed no constitutional symptoms. In a second case a woman was seen with an encrusted chancre on the right labium minus which had existed for two weeks. She had had coitus with only one man who was under treatment for an excoriated nodule in the coronal sulcus and inguinal buboes, and who subsequently developed constitutional syphilis. In the woman's case typical induration and pronounced adenopathy showed that she had received syphilitic infection. Under local antiseptic treatment she recovered in three months, to the surprise of Dr. Taylor. Her body was examined every week for six months, but no eruption could be found. She was watched for 18 months without further result. She married and had two healthy children. In a third case a man, aged 35 years, had a small chancrous erosion behind the sulcus and near the frænum which was regarded as suspicious and was treated with black wash. In three weeks the lesion developed characteristically. It presented marked induration and a greenish-yellow membrane. The efferent lymphatics and the vessels and glands became enlarged. Recovery followed. The patient was watched for five years without showing any evidence of constitutional syphilis. In a fourth case a man, aged 28 years, had a single coitus with a woman who was subsequently found to have condylomata of the vulva. Three weeks later he presented erosion and hardening of the lips of the meatus. Typical induration developed and extended half an inch backward with chancrous erosion and typical yellowish-green membrane. The inguinal glands became enlarged and hard. Under local treatment recovery took place. The patient was watched for 16 months and showed no signs of constitutional syphilis. Dr. Taylor referred to other reported cases, including one published by Kaposi. In all ten cases have been reported by seven observers. Probably many will require further evidence to convince themselves of the existence of exceptions to a well-recognised generalisation even when these are brought forward by such a well-known observer as Dr. Taylor. However, there is nothing unreasonable in supposing that certain persons may develop so great a natural resistance to the syphilitic virus that recovery takes place in the primary stage and the disease is aborted. Adopting the teaching of Sir A. E. Wright, we might suggest that inoculation of the virus is followed by the development of a high opsonic index.

NOTES UPON HEALTH RESORTS.

IN another column of this issue of THE LANCET a short article will be found upon the Riviera from the pen of Mr. James Stanley Little, and we take the opportunity of saying that we shall continue to publish at convenient intervals authoritative notes upon health resorts, continental and British. We have chosen a communication from a layman with which to start the series, because the layman puts his views in such a way that it can be at once appreciated what sort of information the public want from the medical profession. The questions asked of our readers by their patients concerning health resorts are not necessarily of a highly scientific character, but upon their answer may depend entirely the suitability of a particular locality for a particular case. All sorts of points of convenience and economy have to be considered in the recommendation of a place of sojourn as an adjunct to medical treatment, and it is a fact that the public is quicker to recognise this important point than its medical advisers have sometimes been.

AT the Medical Graduates' College and Polyclinic (Chenies-street, W.C.) to-day (Friday, Jan. 18th) a discussion on the Present State of the Leprosy Question in South Africa will be introduced by a paper read by Dr. R. Sinclair Black. Dr. Black was until recently the resident medical officer on Robben Island (the home for lepers of Cape Colony). His personal familiarity with the details of his subject may be expected to make the occasion one of unusual interest.

IN our reference last week to Sir Henry Pitman we stated that he was "but six months away from the hundredth anniversary of his birthday." We find that this is not quite correct, as he was born on July 1st, 1808, and consequently July 1st, 1907, would represent the commencement, not the conclusion, of his centenary.

Dr. H. Charlton Bastian will read a paper at the meeting of the Royal Medical and Chirurgical Society on Jan. 22nd, taking as his subject the *De novo* Origin of Bacteria, Bacilli, Vibriones, Torulæ, and Moulds in certain previously Superheated Saline Solutions contained within hermetically-sealed Tubes.

A TELEGRAM from the Governor of the Mauritius received at the Colonial Office on Jan. 11th states that for the week

ending Jan. 10th there were 15 cases of bubonic plague and 6 deaths from the disease.

Mr. Edward Mason Wrench, F.R.C.S. Eng., has been appointed a member of the Fourth Class of the Royal Victorian Order.

WILLIAM ADDISON, M.D.: THE WORLD'S FIRST HÆMATOLOGIST.

BY HUGH A. MCCALLUM, M.D., M.R.C.P. LOND.,
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YEARS ago while waiting for the termination of a tedious confinement I was asked to inspect some medical books which the husband of my patient had obtained at an auction sale. Among them was Vol. XI. of the Transactions of the Provincial Medical and Surgical Association of 1842 (but published in 1843). It contained the plates and classical article on Inflammation by William Addison. This volume contains the presidential address by James Black. A glance at this retrospective address in medicine will give one a fairly accurate idea of the scientific attitude of the profession at that period on the subjects of blood corpuscles and inflammation. We find from this address that William Addison was then considered an authority on blood.

William Addison, who first discovered the meaning of diapedesis of leucocytes in inflammation, is little known by modern pathologists and clinicians. His name is usually confused with Dr. Thomas Addison, the discoverer of disease of the suprarenal gland, and at one time physician to Guy's Hospital, and for many years the acknowledged spirit which influenced the medical doings at this hospital. This is the statement of Sir Samuel Wilks, the biographer of Thomas Addison, and no higher tribute could be paid him, inasmuch as among his colleagues were such men as Bright, Hilton, Golding Bird, Hodgkin, Gull, Fagge, and Wilks himself. In addition to his celebrated monograph on suprarenal disease, which contains his classical description of progressive pernicious anæmia, the life and labours of Thomas Addison are not only preserved by Guy's Hospital and its attached museum but by a biography of him written by Sir Samuel Wilks.

After searching the library of the Royal College of Physicians of London one finds very little bearing on the life of William Addison. He practised at Malvern and was physician to H.R.H. the Duchess of Kent. His earliest writings were on the blood, published in the *London Medical Gazette* (December, 1840; January, 1841; March, 1841; and April, 1842). He delivered the Goulstonian lectures in 1859 on Fever and Inflammation (Dr. H. D. Rolleston kindly presented me with an autographed copy of a reprint from the *British Medical Journal* of these lectures). His works include three published volumes—viz., "Experimental Research with the Microscope," "Healthy and Diseased Structure," and "Cell Therapeutics." Like his namesake he wrote an extensive article on Pneumonia. I shall pass over all his other writings to point out some overlooked observations in his classical memoir "Blood Corpuscles, on Inflammation and on the Origin and Nature of Tubercle in the Lungs." This essay, with plates of microscopic structures, covers 74 pages, and some idea of the range of research can be gathered from the headings on its first page—viz., 1. Human Blood (*a*) red corpuscles; (*b*) colourless corpuscles; (*c*) molecules and granules; (*d*) fibrine. 2. Pus Cells. 3. Blood Cells and Lymph Globules of the Frog. 4. Inflammation. 5. Cells, flowers, fruit, leaf, pollen, grains, spores, animal; vesicle of the liver, epithelium, animalcules, colourless blood corpuscles. 6. Aeriferous Structure of the Lungs. 7. Tubercles. In speaking of his microscope, he remarks: "The powers I have used magnify 250 and 500 diameters linear." We see that he was equipped with dry lenses of fairly good powers. In addition to being the acknowledged discoverer of the part played by vessels and leucocytes in inflammation—antedating Cohnheim 25 years—it can be fairly claimed for him that he was the world's first great hæmatologist. It was he in this same memoir who first recognised leucocytes as a separate blood cell in man and the mammalia. Previously to his time and for years after leucocytes were recognised as the nuclei of the red cells: "A corpuscle deprived of its coloured capsule" was the contemporary description of this blood cell. In this classical article on inflammation he gives a most accurate description and diagram of blood platelets. He was likewise the first to recognise the fibrillar arrangement of coagulation, and while he makes no statement his diagrams show he not only recognised its fibrillar arrangement but that these took origin from a mass of blood platelets. In the use of reagents to determine the meaning of the granules in leucocytes he noted and described the circulation of cell contents in the leucocytes.

To enable one to obtain a clear conception of what William Addison is describing it will be necessary to consult his drawings among his five plates. In his discussion on human blood (on p. 237, paragraph 2) he says (in italics): "Two very distinct kinds of corpuscles may be distinguished in the blood." He directs to withdraw from the skin by a puncture "a spot of recent blood," which is to be pressed into a thin film between two slips of glass. During the examination he discovered corpuscles that had no disposition to adhere together in rows or irregular masses. After a very accurate description he says: "These are the colourless corpuscles of the blood. By repeating this experiment with blood drawn from any *inflamed surface*, as a pimple or the base of a boil, *they are found very abundant;* and in the blood taken from the skin of a patient in scarlet fever or from the spots of any cutaneous disease, they are remarkably numerous and conspicuous." Here is the first hint in medical literature of leucocytosis (local or general) in inflammatory conditions.

In Carpenter's "Human Physiology" (American edition, 1858) one finds the following sentences (p. 222): "So, as regards the human subject, Mr. Paget confirms (lectures on Inflammation in *Medical Gazette*, 1850, Vol. XLV., p. 972) the statement of Mr. Wharton Jones and Professor J. H. Bennett that the increased proportion of the colourless corpuscles which has been regarded by some observers (especially by W. Addison and Dr. C. J. B. Williams) as characteristic of inflammatory blood and particularly that which is drawn from an inflamed part is far from being a constant phenomenon." I merely quote you these words to show that he called forth in his own day, in a measure, confirmatory criticism.

To return to his knowledge of colourless corpuscles, he says: "They are seldom less in size than the red corpuscles, frequently much larger. The central portion or inner vesicle (nucleus) is clearly defined, its outline appearing like a delicate filament just within the outer tunic of the corpuscle. The interval between the outline of the central portion and the outer circumference of the corpuscle is very small and without colour. Sometimes there is no interval between them and then the corpuscles have a uniform molecular aspect. The central portion has at all times a molecular or minutely granulated aspect and frequently one, two, or more granules during the observation become distinctly visible in it." Thus we have the first description in any tongue of mononuclear and polynuclear leucocytes. He then makes an attempt to determine the character of both red and white cell contents by use of "water, the dilute acetic acid, and liquor potassæ." In closing this paragraph of his paper he says: "These experiments lead to the conclusion that the colourless corpuscles are highly organised vesicles or cells circulating in, and forming a portion of, the blood."

On p. 241 of this volume we have paragraph 5 given over to a discussion on the "Molecules, Granules, and Fibrine." He says: "In the liquor sanguinis of buffy blood before it coagulates a great number of isolated molecules and granules, not enclosed in any corpuscular tunic, may be seen; they are mingled with the colourless corpuscles, but can never be confounded with them on account of their minute size. They are frequently seen in separate groups, which have sometimes a circular outline, appearing as if the corpuscular tunic had been dissolved away from around them. After a short time the fibrine may be seen coagulating." He then goes on to describe coagulation as seen under the microscope. In Plate 1, Figs. 7 and 8, he attempts to sketch what he is describing. A careful inspection of these figures along with the words of his text will convince anyone that he has seen and most accurately drawn the blood platelets and sketches fibrin formation as beginning in a group of them.

William Addison insists on the importance of the granules of a cell, saying: "It is the molecules and granules in its interior which give special qualities to the secretion or the contents of the cell." Half of Plate 3 and all of Plate 4 are given over to drawings of animal and vegetable cells to show the number and position of cell granules. He says:

"The elements of the blood therefore visible by the microscope without any addition or manipulation are: 1st, the red corpuscles; 2nd, the colourless corpuscles; 3rd, molecules and granules in the interior of the colourless corpuscles; 4th, molecules and granules not inclosed in any corpuscular tunic: 5th, the fibrine." Under the action of reagents on white cells he describes the circulation of cell contents. Previously to Addison's time, white blood cells had been seen in the cold-blooded animals and were thought to be the nuclei of the red cells set free. Addison's experiments on inflammation and the vascular changes accompanied by diapedesis are quite as accurate as anything written within the last ten years.

It would follow as a self-evident conclusion that pus was altered colourless corpuscles, but with his usual correctness of detail he does not postulate this until he has carefully researched the component parts of pus. Here are his final deductions on pus: "The conclusions to which these experiments lead are, that pus corpuscles of all kinds are altered colourless blood corpuscles and that all liquid colourless, abnormal discharges are effusions of the liquor sanguinis, containing more or less of the fibrine and corpuscles in varying proportion. No new elementary particles are formed by inflammatory or diseased action." This is a wonderful advancement over the belief of his time—viz., that pus came from grown granules and molecules of the blood and tissues.

Addison's next field of research was the lungs and here again he is a pioneer, giving the first accurate description under the microscope of lung structure. It was necessary to know the normal to appreciate the abnormal deposits—viz., tubercles. The quotation of a few lines will enable one to grasp the clearness with which Addison worked out the minute anatomy of tubercle. "Objects composing tubercles of the lungs originate from blood corpuscles and not from any peculiar formation foreign to the normal structure of the tissues. In the first place a tubercle involves or includes in its substance the vesicular structure of the lungs; minute blood-vessels, lobular passages, and air cells, ... the blood-vessels are no longer permeable but their presence may be demonstrated. Secondly, I shall endeavour to show that the tubercles are composed of abnormal epithelial cells. ..... Granulated corpuscles of a tubercle are sometimes very large (1/300 in 1/1000). There appears from my researches to be no distinction whatever between spots of lepra on the skin and tubercles in the lungs, if we except those arising from the different situation and function of the tissues."

William Addison's work was a stimulus to C. J. B. Williams, Wharton Jones, and James Paget, yet none of them seemed to have the accuracy and keen insight to recognise in the next 25 years that Addison's views of inflammation were essentially correct. In 1868, when Cohnheim first published his contribution on inflammation, the English pathologists began to discover that William Addison antedated Cohnheim's observations some 25 years. It has escaped observation, however, that he first recognised leucocytes[1] as an integral part of human blood and that he attempted a classification of them on the bases of their granules, thus antedating Ehrlich's classification (1876) a third of a century. It is easily understood why his observations on leucocytes in inflammatory blood should have gone unnoticed inasmuch as it is only of recent date that it has become a subject of first importance to the clinician. The blood platelets, however, are a subject of interest to skilled investigation alone and it is difficult to understand how his observations remained unmentioned for 60 years.

[1] London Medical Gazette, December, 1840, and January, 1841.

DONATIONS AND BEQUESTS.—By the will of Mrs. Arabella Vernon, of Penalt, Weston-super-Mare, Somerset, the following bequests are made: £2000 to the Royal National Hospital for Consumption at Ventnor; £2000 to the Royal United Hospital, Bath; £2000 to the Indigent Blind Visiting Society; £2000 to the Royal Hospital for Incurables, Putney Heath; £2000 to the West-End Hospital for Paralysis and Epilepsy, Welbeck-street; £2000 to the London Fever Hospital at Islington; £2000 to the Central London Ophthalmic Hospital; £2000 to the Central London Throat and Ear Hospital, Gray's Inn-road; £2000 to the Royal Hospital for Diseases of the Chest, City-road; £2000 to the Brompton Cancer Hospital; £2000 to the Deaf and Dumb Asylum (office in Cannon-street); £2000 to Guy's Hospital; and £2000 to the Rebuilding Fund of the Western Ophthalmic Hospital, Marylebone-road.

NOTES UPON HEALTH RESORTS.

A LAYMAN'S VIEW OF THE RIVIERA.

BY JAMES STANLEY LITTLE.

UNTIL comparatively recently the Riviera, in any case the French Riviera, had enjoyed an unassailed reputation as the health resort of the world. Even now, although that reputation has been challenged seriously from several quarters, the belief in its sanitary perfections is general and widespread. Without calling in question the substantial accuracy of this popular verdict, four seasons' residence from end to end of the Riviera, from Toulon to Leghorn that is to say, ought to bring home to any reflective person the fact that it is wise to recognise certain special or local conditions which go to qualify the unreserved acceptance of this enviable reputation.

It would ill become a layman to attempt to enter into those highly debateable and technical discussions as to whether the warm and sheltered parts of the earth are so favourable to consumptive patients as those altitudes to which many of our most distinguished chest physicians now send their patients. I may say in passing, however, that while I have personal knowledge of scores of consumptives who have been restored to health by the voyage to South Africa and residence in suitable parts of that benighted country, with equal opportunities of knowing I can remember comparatively few cases where the like happy result has followed on wintering in the Riviera. In any case it seems to be conceded, with something approaching unanimity, that persons hitherto free from pulmonary diseases run a risk, not inconsiderable, of contracting them in places where the air and soil are impregnated with the germs of lung disease. Latterly this consideration has operated in favour of the Italian Riviera, which, not being so full of tuberculous sufferers as the French Riviera, has been considered less dangerous as a health or pleasure resort. It has militated greatly against the popularity of such towns as Mentone. It seems to me that the clouds of dust which fill the air (a plague vastly increased in these days of autmobilism), the startling variations in temperature experienced in any ordinary day from end to end of the Riviera, especially the chill dampness of the sunset hour, expose delicate persons visiting that coast to serious risks which they do not run in patronising many of the winter resorts of England. As touching this varying temperature, the changes in the weather in any one day, during the last four seasons in any case, have often been so great and so frequent that grave consequences have resulted to many invalids. Then there is that spell of three weeks' rain to be reckoned with, and those cyclonic storms, which are becoming so general as almost to change the character of the whole district so far as climate goes. This year the bad seasons of the previous three years has culminated, as all the world knows, in a ten days' storm of lightning, hail, and rain of unexampled severity Indeed, it is necessary for the sick, and, for that matter, the sound also, to take great care and to adopt almost painful precautions in this country.

It is commonly asserted that the Italian Riviera, throughout its entire length, is damper than, and that the air lacks something of the stimulating and resilient qualities of, the French littoral. I should be inclined to dispute this view so far as the coast of the Alpes Maritimes is concerned. That coast, as a whole, does not compare favourably, I think, with many parts of the Italian Riviera from Ventemiglia to Spezia. Nor can it be said that in the matter of evil smells, the pollution of the foreshore and sea, and of the towns themselves, the French resorts are, on the whole, in any better case than their Italian rivals. The drainage of the former is generally of a more advanced type theoretically than that of the Italian towns. But the odours of Hyères, not merely those of the charming old town but of the fashionable quarters also, are as noxious as any one endures in the Italian towns and villages; while for general untidiness, and carelessness in disposing of household refuse, many centres of population in Provence, marine as well as inland, are as open to censure as the much-abused cities and villages of Northern Italy. What saves Provence, or to be more explicit, what saves the littoral and its hinterland from Cannes to Hyères, and especially the nascent winter quarters between San Raphaël and Bormes, is the mistral, which blows away the smells and renders this stretch of the

Riviera, in a far greater degree than any other part of the Mediterranean coast, bracing and invigorating. The fact remains, however, that here almost as much, if not quite as much, as in other parts of the French Riviera the number of victims to consumption among the natives reaches every year a very high percentage of the population. But this unhappy fact is due, I think, to morbific causes in which climate plays but a subsidiary part. It would take me too far afield to attempt to discuss this issue.

Again, it is not to be denied that this stretch of the Riviera is trying to the constitutions of persons whose maladies are purely nervous. On the other hand, despite what has been stated as touching the natives, it may be asserted, without fear of contradiction, that more remarkable cures of pulmonary disorders can be claimed by this coast than any other reach of the Riviera can establish. St. Maxime has a particularly happy reputation in this regard. I know, personally, of several well-authenticated cures effected in this little old-world village, which I have ventured to christen the "Margate of the Riviera." The famous Breton poet, Théodore Botrel, visits this tiny seaport—one of the few remaining untouched villages along the Riviera—every year. When he first made its acquaintance he was at the point of death.

If one may judge by certain habits of the people generally, no country the world over is more trying to the throat and vocal passages than the Riviera. Here, again, the short stretch of coast which lies off the P.L.M. from St. Raphaël to Hyères is favourably distinguished, since despite the fact that it is considerably colder than other sections of the littoral, its inhabitants do not habitually turn the earth into a spittoon in the manner of their near neighbours. Upon this habit, about its causes that is to say, certain Italian doctors, men of standing, have discoursed to me. But whatever the reasons, the fact remains that affections of the throat are extremely common both in Southern France and Northern Italy, in the interior as well as the coast. In Northern Italy nobody seems to possess a sound throat, and in many districts goitre is painfully prevalent. The inhabitants of the whole of this beautiful part of the world are not, it must be allowed, healthy in appearance, nor do they make, as a rule, old bones. But this perhaps is to be attributed mainly to the fact that they mature early in life, and that they pay scant attention to hygienic precepts in their manner of living.

To return to the visitors. There is another serious drawback to the Riviera which cannot be overlooked. Just as the inhabitants of any given town will aver vehemently that it is free from cold winds, evil smells, and other disagreeables, whilst its near neighbour is damned as the victim of all these ills; so as the visitor proceeds from end to end of the Riviera he is told in turn that the particular town he is instantly visiting is practically free from mosquitoes, though the towns to the right or left of it are eaten up by them. I find, as a matter of fact, that no exception is to be made. The whole coast is under the bane, though, of course, with differences. I have suffered cruelly, sleeping under nets too, in the best hotels of San Remo and Mentone for instance. The nets are some protection it is true, but woe betide the unhappy wight who becomes imprisoned with one or more of these pests as his sweet companion, for they creep in somehow. In any case nets are far from comfortable and they are not always forthcoming. The pastels—Zamparoni they are called from the name of their inventor—are also of limited utility. They send the robust insects to sleep for awhile and kill the weaker vessels. But it is not everyone can stand their fumes. They produce headache and are bad for the eyes and throat. I have smothered myself with mentholised vaseline, thymol powder, and a score or more odious specifics besides, but the wretched tormentors of one's slumbers are not to be denied. After a time their horrid little blast comes sounding over one's head and around one's ears. One feels like a man gagged and bound and covered by a fully charged revolver which he knows will be discharged at him sooner or later. I have been almost reduced to hysteria by their attentions and have spent a full hour night after night chasing the villains. Sleep is impossible and nervous prostration results. In estimating the *pros* and *cons* of wintering on the Riviera the miseries caused by these pestilential creatures, which sting you by night and by day, which are so hardy that this winter they have survived the ten days' cyclone of early November, must be taken into consideration.

Varazze, Italy.

MEDICINE AND THE LAW.

The Golden Rules of Medical Evidence.[1]

A LITTLE work has recently appeared in the series of booklets called by their publishers the "Golden Rules Series," dealing with the giving of medical evidence and Dr. Stanley B. Atkinson, the author, lays down principles which are for the most part admirable. It is not always, however, easy to be brief and at the same time explanatory, and although the author, as a rule, makes his meaning clear we are not quite sure that we agree with his advice to a medical man anxious to escape attending as a witness if we have understood it rightly. He says: "If an appeal to the solicitor fails you may state that your memory of the events in question is vague, and when prompted you may find that the facts as known to you are quite hostile to his client's claim." If this is intended to cover all cases, including those in which the evidence, if given truly and frankly, would not be adverse, we should suggest modification; if, on the other hand, we have attached a meaning to the author's expressions which he did not desire to convey they might be made clearer. Nor are we convinced of the safety of a recommendation to be found on p. 21, with regard to the obtaining of a declaration from the lips of a person who may be dying as the result of an act capable of being charged as murder or manslaughter. Dr. Atkinson says: "Should death be imminent after a criminal assault (which includes abortion) the medical man should urge the victim to make such a dying declaration." It would involve the medical man in heavy responsibility should he have to repeat a declaration thus extracted in the witness box with the life of the prisoner in the dock dependent upon its absolute accuracy. The dying person conscious of impending death may be assumed by the law to speak the truth but no such assumption renders him infallible and in conceivable circumstances he may have been under a mistaken impression which a living witness would be able to correct. It is one thing to receive such a declaration or even to encourage the utterance of that which may be useful in the cause of justice; to "urge" it is a very different matter. The pages devoted to informing and reminding the medical man of points relating to the preparation and giving of his evidence where it is strictly of a medical character are, however, of a useful and practical nature and we note that matters of detail hardly to be described as rules of medical evidence have not been too rigidly excluded—e.g., a reminder that "it is dangerous to attend lying-in women after making an autopsy." It is more easy, however, to lay down apparently simple maxims than it is to obey them. We find, for example, on p. 31 the golden rule, "Say exactly what you mean," which all honest men endeavour to do but which sometimes through their very desire to be accurate they fail to achieve with complete success. "Avoid appearing suspicious" is another maxim on the same page, which suggests as a possible preliminary warning, equally needed, "avoid *being* suspicious," although neither would always be easy to obey. Occasionally a "golden rule" may require amplification in order that it may be clearer, but we can point to one propounded by Dr. Atkinson which would be as easily understood, and no less generally applicable, if two words were elided: "Little is gained by cross-examining one who is *obviously* telling the *plain* truth." The words which we have put in italics are surely superfluous, particularly to those who are willing to understand that the "truth" implies the truth of the witness's oath—i.e., "the truth, the whole truth, and nothing but the truth." Most counsel will agree that the witness, whether he be a skilled witness of fact or one called as an expert who is master of his facts and narrates them simply, concealing nothing, is not likely to be seriously "knocked about" by the most skilful cross-examiner "within" or "without the bar." Still less is he likely to suffer either apparently or in reality if he has been called by an advocate with the knowledge necessary to re-examine properly and to correct any false impression liable to be founded upon the cross-examination.

Prescribing by a Druggist.

In the course of a recent inquest at Westminster it was

[1] Golden Rules of Medical Evidence, by Stanley B. Atkinson, M.B., B.Sc., of the Inner Temple, Barrister-at-Law. Bristol: John Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1906. Pp. 63. Price 1s.

proved that the death of a woman aged 58 years was due to heart failure from cystitis and chronic Bright's disease. The inquest was presumably held on account of the absence of a certificate of the cause of death, for it was shown that the deceased had asked a druggist to treat her and he had acceded to her request. The imprudence of this course was pointed out by the coroner, Mr. Troutbeck, who expressed a hope that the public by the publication of the details of such cases might be induced to refrain from putting pressure upon druggists to usurp the functions of the medical man. Fortunately for the druggist in the case mentioned the medical witnesses were able to say that the medicine given was such as might have been prescribed in the circumstances described, but he had arrived at it apparently through having suffered himself from similar symptoms to those which the deceased described to him and by remembering what his own medical adviser had ordered him to take.

THE REPORT OF THE MEDICAL OFFICER OF HEALTH OF THE ADMINISTRATIVE COUNTY OF LONDON.

Sir Shirley F. Murphy's fourteenth annual report on the health of the administrative County of London in the year 1905 has just reached us. Like its predecessors the present volume is replete with information of interest and importance to dwellers in the metropolis, rich and poor alike. The report is divided into two sections, Part I. dealing with vital statistics and public health and Part II. being concerned chiefly with sanitary administration. In an appendix there appears the report of Dr. J. Kerr, the medical officer for education, which is dealt with elsewhere in our present issue, and the whole is prefaced, for presentation to the County Council, with an introduction by the chairman of the public health committee. This arrangement, whilst adding little to the value of the information contained in the report itself, is advantageous as a means of smoothing some departmental difficulties connected with the recent assumption of educational responsibilities by the central authority.

As usual, Sir Shirley Murphy's report opens with an analysis of the rates of marriages, births, and deaths, each of which attained its lowest point in the year 1905. With respect to the ages at marriage of Londoners, we note that as compared with previous years there has been in both sexes a decrease in the proportion of minors married to marriages at all ages. This feature, however, is observable not only in London statistics but also in those of the rest of England and Wales. The decline in the metropolitan birth-rate which has been manifest since 1871-80 has not been uniform throughout the administrative county. In all the registration districts of London save those of Whitechapel and St. George's-in-the-East there has been in recent years a decline of greater or less amount, but in these two districts the birth-rate has shown a not inconsiderable rise since 1851-60—a result, perhaps, indirectly due to alien immigration. From an interesting table in the text it appears that in most of the principal European towns there has been within the last 25 years a similar fall in the birth-rate, the decrease being most conspicuous in Brussels, Paris, Berlin, and Vienna, and least so in St. Petersburg.

As regards the relation of social condition to fertility of the female population Sir Shirley Murphy gives interesting information which is not generally accessible. In a useful table the rates are shown for groups of sanitary areas arranged with reference to the proportion of the inhabitants dwelling more than two in a room in tenements of less than five rooms. Very properly, the birth-rate has been calculated on the number of married women estimated to be living at child-bearing ages and not as heretofore on the total estimated population. On the other hand, for the reason that the previous places of residence of the mothers confined in such institutions could not be ascertained, no correction has been made for the very considerable number of births occurring in lying-in institutions. From this table we learn that the birth-rate is persistently higher in the more overcrowded and least provident districts than elsewhere, the birth-rates varying from 2·03 per 100 married women, aged from 15 to 45 years, in Group I., where the overcrowding does not exceed 3 per cent. of the total houses, to 2·73 per 100 in Group V., where the overcrowding reaches 28 per cent.

In treating of the mortality of London in 1905, which he shows to have been the lowest on record, Sir Shirley Murphy reviews the ordinary methods of correcting death-rates for differences in the age and sex constitution of populations. These methods he illustrates by reference more particularly to two—the one generally known as the factorial method, the other, and more accurate, consisting in the application of the deaths at each age to a population of standard composition. It is the factorial method that has been adopted in this report because of its greater facility of application, as well as of the greater economy of arithmetical labour incidental thereto. But Sir Shirley Murphy is careful to note that by the method adopted he obtains results which, even in the case of the abnormally constituted population of Hampstead, do not differ from the methods of deaths in standard populations by more than about 1 per cent.—an error which in the circumstances may be regarded as negligible. The report contains a series of tables showing for the administrative county as a whole as well as for each of its sanitary areas the death-rate in proportion to estimated population, the figures being corrected by referring to the previous places of residence, the deaths occurring in public institutions. In order so far as practicable to eliminate error Sir Shirley Murphy has been at the trouble of constructing a life table for London on the basis of the census enumeration of 1901, thus ascertaining the expectation of life of Londoners at the several age periods dealt with in the tables. In another table the number of deaths in 1905 at each group of ages and for each sex is compared with the number that would have occurred had the rates in that year corresponded to the mean rates in 1891-1900. The number of lives gained in the year 1905 is also shown, the result being expressed in terms of "life capital," which result has been obtained by applying the mean future life term to the number of lives saved at each group of ages. The importance of presenting after this fashion the effect of sanitary administration in London will be appreciated when the fact is realised that in one year alone there has been a saving of 19,585 lives, representing a gain to the community of 757,016 years of "life-capital."

Prominent among social questions of first importance in the present day is that of the persistent decline in the fertility of our female population and its relation to the notoriously excessive loss of life that still prevails in early infancy. This question has recently been freely discussed in the public press, lay as well as medical, and the conference on infantile mortality held last autumn at the instance of Mr. John Burns has led to a further ventilation of the whole question which will, we trust, eventuate beneficially to the rising generation. In these circumstances we were prepared to find in the present report more than a passing reference to the subject of metropolitan infantile mortality. Availing himself of the returns made by medical officers of health to the Local Government Board on forms newly issued by the Board's medical department for the purpose of securing a more detailed account of infant mortality and its causes Sir Shirley Murphy has compiled an instructive table showing for the metropolis generally and for its several areas the deaths of infants from the principal causes in weeks and months of the first year of life. What is conspicuous in the sanitary history of the year 1905, as of other recent years, is the unfortunate fact that whilst the death-rate at all other ages shows a decrease from year to year the mortality of infants remains practically stationary. From the table last referred to it may be seen that of the deaths occurring within the first year of life nearly one-third take place within the first month and that in each successive month the number of deaths decreases until the ninth, when an increase is observed, due in all probability to the change of diet from natural to artificial. From a life table included in the text it will be gathered that the probability of an infant's living one month increases with each successive month until the ninth is reached when the probability is less than that in the eighth month of life. Whether or not this is a constant feature of infantile mortality in London can only be determined after more extended experience, for the figures now published relate to one year alone. But it is interesting in this connexion that a similar life table published in the previous annual report, and based on the figures for the year 1902 presented by Dr. Tatham to the Inter-departmental Committee on Physical Deterioration, manifested a similar fall in the probability of living through the ninth month of life. That life table,

however, showed a fall in the probability in the seventh month of life which is not noticeable in the table for 1905.

The influence of social condition on mortality at different periods of the first year of life is well shown in a table in which are compared the rates of infant mortality obtaining in groups of metropolitan districts arranged according to degrees of overcrowding as revealed by the recent census. Allowing for some irregularities in the rates due to the fact previously noted that the births in lying-in institutions have not been distributed to the districts in which the mothers reside, it appears that the mortality of infants in their first year increases with the proportion of the population at all ages living in overcrowded tenements. When the figures for each "trimester" are considered the same phenomenon is observable but the fact particularly deserves notice that the difference in mortality between the least and the most overcrowded groups is the least marked in the first three months of life, more marked in the second, still more marked in the third, and most marked of all in the fourth three-month period of life. This important question of the influence of social condition on infantile mortality is brought into prominence for the first time in the present report. Unfortunately a similar method has not as yet been attempted for other parts of the United Kingdom, but until this has been done no trustworthy data will be available whereby the relation of social circumstances to infant vitality can be looked for. Sir Shirley Murphy has divided the districts of London into five groups in the increasing order of overcrowding, the first group showing a proportion of 8 per cent. of the population living in one room and the fifth group a proportion of 28 per cent. Owing probably to the more complete registration of births and deaths in the better circumstanced districts the mortality in the most overcrowded group in the first month of life scarcely exceeds that of the group that is least overcrowded. As age progresses, however, the difference increases and this may be due either to decrease of the difference of death registration in the several districts or to "the effect of environment becoming more marked as it is afforded a longer time in which to operate." Although Sir Shirley Murphy very properly hesitates to strain inferences from the experience of a single year, nevertheless he thinks that the figures which he has published tend to invalidate the conclusion expressed by some persons that ante-natal conditions constitute a predominant factor in determining infant mortality.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 17th, 1829.

REMARKABLE CASE OF COMPLETE ABSTINENCE.

ANNA GARBERO, of Racconis in Piemont, died on the 19th of May, 1828, after having been for two years, eight months, and eleven days, without any solid or liquid nourishment. Sixteen hours after death she was examined by MM. Rolando and Gallo, of Turin. The serous and synovial membranes were dry, and resembled parchment; the diameter of the principal veins and arteries was much less than usual, but the most remarkable morbid alteration was that of the digestive organs; the transverse colon had descended to the hypogastric region, its two extremities remaining fixed in their natural situation; the stomach had descended in a similar manner; and being much contracted, had the appearance of part of the larger intestine. The duodenum was in a natural condition, but the other small intestines were considerably contracted; the lower part of the cæcum, and the middle portion of the transverse colon, contained small hardened scybala; at the lower part of the colon descendens, the membranes of the intestinal canal were thickened and callous, so as to hinder the further progress of the excrement; and in the sigmoid flexure, it was completely obliterated. The mucous membrane of the stomach was softened and friable; that of the intestinal canal had undergone the same alteration, and was of a brown colour, such as is observed in incipient gangrene; the valvulæ conniventes were hardened, and the whole tract of the small intestines was empty. The mucous membrane of the rectum was of a violet colour, thickened, beset with hard scirrhous excrescences, and covered with very fœtid pus. The mesenteric glands were in a natural condition; the epiploon and mesentery exhibited no traces of fat, and were nearly in the same state as the pleura and peritoneum.—*Annali di Omodei.*

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 9413 births and 6348 deaths were registered during the week ending Jan. 12th. The annual rate of mortality, which had been equal to 19·7 and 22·4 per 1000 in the two preceding weeks, declined again to 20·7 in the week under notice. During the 13 weeks of last quarter the death-rate in these towns averaged only 16·2 per 1000, the rate during the same period in London being 16·0. The lowest death-rates in the 76 towns during last week were 8·7 in Hornsey, 10·3 in King's Norton, 14·3 in Willesden, and 14·4 in Aston Manor, in Rhondda, and in Barrow-in-Furness; the rates in the other towns ranged upwards to 30·2 in West Bromwich, 31·5 in Brighton, 31·8 in Hanley, and 32·8 in Middlesbrough. The 6348 deaths in the 76 towns showed a decline of 531 from the high number in the previous weeks, which was partly due to the delay of registration during the Christmas holidays. They included 423 which were referred to the principal epidemic diseases, against 430 and 478 in the two preceding weeks; of these, 140 resulted from measles, 91 from whooping-cough, 70 from diphtheria, 47 from diarrhœa, 41 from scarlet fever, 34 from "fever" (principally enteric), and not one from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 1·4 per 1000 in the 76 towns; the rate in London from the same diseases did not exceed 1·2. No death from any of these epidemic diseases was registered last week in Halifax, Northampton, York, Coventry, or in eight other of the 76 towns; the annual death rate therefrom, however, ranged upwards to 4·7 in Smethwick, Bootle, and Hull, and 8·2 in Warrington. The fatal cases of measles showed the largest proportional excess in West Ham, Leicester, Bootle, Rotherham, Hull, and Warrington; and whooping-cough in Huddersfield, Leyton, Rotherham, and Walthamstow. The 70 deaths from diphtheria showed a decline of 29 from the number in the previous week, but this disease caused a high death-rate in Reading, Smethwick, and Leyton; the deaths from scarlet fever also showed an excess in Smethwick and Hanley. The deaths referred to "fever" included 11 in London, two in Birmingham, two in Salford, two in Blackburn, and two in Swansea. The fatal cases of diarrhœa were fewer than in recent weeks. No case of small-pox has been under treatment in the Metropolitan Asylums Hospitals since the end of June last. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 3846 and 3707 in the two preceding weeks, had further declined to 3521 at the end of the week under notice; 285 new cases were admitted to these hospitals during the week, against 237 and 309 in the two previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had steadily increased in the six preceding weeks from 312 to 718, declined again to 620 in the week under notice, but exceeded the corrected average in the corresponding week of the last five years by 261; 83 deaths were also referred to influenza. The causes of 62, or 1·0 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Salford, Newcastle-on-Tyne, and in 38 other of the 76 towns; the proportion of uncertified deaths, however, again showed a considerable excess in Liverpool, Birmingham, St. Helens, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 19·0 and 22·9 in the two preceding weeks, declined again to 20·8 in the week ending Jan. 12th, and was almost identical with the rate recorded during the same week in the 76 English towns.

The rates in the eight Scotch towns ranged from 18·2 and 19·2 in Paisley and Edinburgh, to 24·0 in Perth and 25·6 in Greenock. The 721 deaths in the eight towns showed a decline of 75 from the number returned in the previous week, and included 67 which were referred to the principal epidemic diseases, against 55 and 71 in the two preceding weeks. These 76 deaths were equal to an annual rate of 1·9 per 1000, which exceeded by 0·5 the rate from the same diseases in the 76 English towns; they included 19 which were referred to whooping-cough, 18 to "fever," 12 to diarrhœa, nine to measles, six to diphtheria, three to scarlet fever, and not one to small-pox. The 19 fatal cases of whooping-cough showed a slight increase, and included 13 in Glasgow and four in Greenock. The 18 deaths from "fever" exceeded the number in any recent week, 14 occurring in Glasgow and four in Edinburgh; 11 of these "fever" deaths in Glasgow and three in Edinburgh were certified as cerebro-spinal meningitis. Four deaths were attributed to diarrhœa both in Glasgow and in Edinburgh. Five fatal cases of measles were returned in Aberdeen and two in Edinburgh; three deaths from diphtheria and the two from scarlet fever were recorded in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 119, 167, and 182 in the three preceding weeks, further rose to 185 in the week under notice, and exceeded the number returned in the corresponding week of last year by 59. The causes of 22, or 3·0 per cent., of the deaths registered during the week in the eight towns were not certified or were not stated; the mean proportion of uncertified deaths in the 76 English towns during the week did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 28·8, 18·4, and 31·9 in the three preceding weeks, declined again to 29·0 in the week ending Jan. 12th. During the 13 weeks of last quarter the death-rate in the city averaged 23·9 per 1000, the mean rate during the same period being only 16·0 in London and 16·2 in Edinburgh. The 219 deaths of Dublin residents during the week under notice showed a decline of 22 from the high number in the previous week, which excess was mainly due to the delay of registration during the Christmas week; they included eight which were referred to the principal epidemic diseases, against five and 19 in the two preceding weeks. These eight deaths were equal to an annual rate of 1·1 per 1000, against 1·2 in London and 1·8 in Edinburgh. These eight deaths from these epidemic diseases in Dublin last week included three from measles, two from whooping-cough, two from diarrhœa, one from "fever," and not one either from scarlet fever, diphtheria or small-pox. The fatal cases of measles corresponded with the number in the previous week, while those both of whooping-cough and diarrhœa showed a marked decline. Four inquest cases and one death from violence were registered during the week; and 87, or 40·1 per cent., of the deaths occurred in public institutions. The causes of seven, or 3·2 per cent., of the deaths registered in the city during the week were not certified; the percentage of uncertified deaths in the week under notice did not exceed 0·2 in London, while it was 3·1 in Edinburgh.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: P. V. Jackson to the *Sapphire* on recommissioning, and P. E. Maitland to the *Majestic*. Staff Surgeon: J. Martin to the *President*, for three months' course at West London Hospital. Surgeon: F. C. Robinson to the *Sapphire* on recommissioning, to be lent to the *Tyne*.

In accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Staff Surgeon Albert Bobart has been allowed to withdraw from His Majesty's Naval Service with a gratuity.

ROYAL ARMY MEDICAL CORPS.

Major R. W. H. Jackson, specialist sanitary officer at Dublin, is appointed to the Belfast District. Captain E. Brodribb, from Gibraltar, is appointed for duty at Kilkenny, and Captain S. de C. O'Grady from Limerick to Dublin. Captain F. S. Penny joins the London District for duty.

ROYAL ARMY MEDICAL CORPS IN INDIA.

Lieutenant-Colonel J. J. C. Bennett has assumed command of the Station Hospital, Saugor, on return from leave. Major F. W. Begbie has been posted for duty in the 5th Division. Captain L. L. G. Thorpe has returned from leave and has arrived at Jubbulpore. Captain A. W. Gibson has left Dthala for Aden. Captain T. F. Ritchie is granted 60 days general leave from Dec. 7th, 1906. Lieutenant J. Campbell is appointed specialist in the prevention of disease.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Major-General Lord Cheylesmore, C.V.O., will distribute the prizes of the London Companies Royal Army Medical Corps (Volunteers), on Saturday, Feb. 9th, at their headquarters, 51, Calthorpe-street, Gray's Inn-road, London, W.C.

MR. HALDANE'S NEW ARMY SCHEME.

The Army Order recently issued puts us in possession of some very important information regarding the great changes, which are still, however, quite incomplete, proposed to be carried out in Mr. Haldane's new army scheme. There is little or nothing in the Army Order or in the explanatory memorandum accompanying it which calls in any special way for medical comment. Nevertheless, as no great and fundamental changes can take place in the army as a whole without more or less affecting every branch and department of it, and as the present War Minister's declared aim and object are to develop, if not to create, a national army and to organise a new and comprehensive system of national defence we may venture to express some of the impressions that have occurred to us. Seeing, moreover, that any movement in this direction is necessarily intimately associated with that of the maintenance of our national stamina and vigour it becomes a question of public health. On this relation, however, there is no need to enter here beyond calling attention to the important bearing which it has upon this army problem. As regards the titular changes introduced, for British military purposes a division is a handier tactical unit and one more in accordance with the army traditions of this country and with the present organisation of our Indian army than an army corps. Divisions and brigades lend themselves well to army medical organisation purposes. We can only suppose, however, that before Mr. Haldane for economical reasons made the reductions that he did in the regular army of trained soldiers he had taken some steps to ascertain how his new proposals for recruiting and reorganising the regular army from the non-regular—as to foreign service, for example—were likely to be received and to work, for on this success mainly depends. It is as impossible to have a river without water as an army without recruits, and the quality, in training and efficiency, of any force to take the field against that of a Continental Power has in the present day to be of the best. As we have already said, no one can doubt Mr. Haldane's sincerity of purpose and breadth of view. The object which he seeks has, and should have, no element of political party spirit about it. The appearance of his complete scheme will naturally be awaited with great interest and curiosity, and should it prove reasonably adequate to the needs of the occasion and likely to lead to some settlement of this question on a satisfactory basis he will have well deserved all the praise which he will surely obtain from men of all parties.

NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund held on Jan. 15th, when Sir J. Dick, K.C.B., presided, the sum of £62 was distributed among the several applicants.

THE NEW ARMY MEDICAL SERVICE ADVISORY BOARD.

The *personnel* of the reconstructed Advisory Board formed by the amalgamation of the Army Medical Advisory Board and the Army Hospital Sanitary Committee has now been announced. We publish the names in another column (see p. 178) and believe that our readers will agree with us that the selection of members has been made judiciously.

Correspondence.

"Audi alteram partem."

SECURITY OF TENURE FOR POOR-LAW MEDICAL OFFICERS IN THE HIGHLANDS OF SCOTLAND.

To the Editors of THE LANCET.

SIRS,—Security of tenure for Poor-law medical officers in Scotland is so well recognised as right and proper that without any special enactment it has gradually but surely become the rule except in the remoter parishes of the Highlands and Islands. No doubt the law of the land should in explicit terms reinforce the practice. But security of tenure cannot be made legally absolute "*ad vitam aut culpam*." It can only be relative—that is, there must be the power of dismissal still left with the parish authorities but subject to the intervention of the Scottish Local Government Board. This Board has to be made the judge as to whether the dismissal be capricious and unjust or not.

Had the Local Government Board 40 years ago laid down that the power of dismissal was only to be exercised subject to its approval as one of the regulations in connexion with the Parliamentary grants in aid of Poor-law medical relief, I have no doubt such a restriction would then have been quietly accepted as a necessary condition of help from the State. But, Sirs, the times change and we have to change with them. Two things have happened. Gradually parochial boards have come to see that their officers deserve, and should possess, security of tenure. And so it may truly be said that parochial medical officers all over Scotland with the exceptions I have mentioned do already hold their appointments "*ad vitam aut culpam*." The other change which also I can say on looking back nearly 50 years, a great part of which was passed as a parish doctor, has come about, is that Scottish feeling as against central interference of all kinds has waxed very much stronger, and, rightly or wrongly, parish councils in the larger centres will not allow that the Local Government Board should have any legal right whatever to interfere with their jurisdiction. And so the chances of a change in the law, however reasonable, yet as tending, however remotely, towards centralisation are to those studying the trend of the times absolutely *nil* and the agitation in that direction useless. If this contention be right, surely, Sirs, it is wiser to limit our attention to the diseased portion of the existing system and leave the healthy part alone.

Pain and disturbance of function are practically—nay, I may say invariably—limited to the extremities of the Scottish body politic, the Highlands and Islands. What, then, is the cure for this complaint—a complaint, unfortunately, too frequent and one which no unprejudiced person can deny really exists and demands remedy. Owing to the widely scattered and poor condition of the inhabitants in those remote regions it has become necessary to pay the parish doctor at a much higher rate per head of paupers than the ordinary parochial medical officer is paid in the more densely populated and richer parts of the country. Again, from the very nature of things, the Highland and Island doctor is appointed, not only to look after the paupers, but also he has to attend those of the parish inhabitants, be they rich or poor, who may require his services. In this way he becomes a sort of club doctor and the invariable evils of contract practice immediately begin to grow and flourish. His employers, partly by salary from their own pockets, partly by securing larger and larger grants from the public purse, claim that they have the right, not only to his services, but to dictate on private and personal grounds that they themselves should be judges of the skill and attention he should bring to bear on the discharge of his professional duties. Surely, Sirs, a ridiculous state of things if the doctor is to be in any sense independent, and if he is to exercise that indispensable qualification for real usefulness in his work. No doubt legal security of tenure would help him. But to those who know the real nature of the working of the existing state of things much more than security of tenure is required if the condition of the Poor-law doctor in the Highlands and Islands is to be placed on a satisfactory footing. Even with security of tenure he would still be ill-paid, ill-housed, a prisoner practically in his parish, and unpensioned for his old age. The state of matters of which we have read so much as existing in Ireland is practically going on on this side of the Irish Sea in a great portion of the north and west of Scotland.

Is the real remedy here, as there, to be a State-paid medical service? From the purely professional point of view there is much to be said in favour of this proposal, as there is in the corresponding case of education. The position of a civil servant is assured, his salary and pension are fixed and certain, and, above all, merit would be more likely to be recognised and promotion to follow would almost come to be relied on.

But with all due deference to Mrs. Sydney Webb, I do not think the country is prepared for such a grave socialistic and centralising experiment. No doubt, as that great authority on local government shows, we have travelled far on the same road in the matter of public health in supplying free of charge to rich and poor infectious diseases asylums and are fast giving to all and sundry gratuitous medical advice and medicines in our general hospitals. But, looking forward, as we are entitled to look, hopefully to great advances in sanitation, housing, proper upbringing of children, physical training of the pupils, and medical inspection of schools, is there not a real prospect of abolishing what may be called the policy of mere expedients to meet present difficulties? It may be visionary, but having secured the reforms mentioned there is really no reason why each individual should not sit down under his own vine and fig tree, when he will have learned not only to avoid all known causes of infection but be able to cope with disease and death guided by his own medical adviser, without the intervention of an army of medical officers of health and sanitary inspectors and without consigning his nearest and dearest to the tender offices of strangers in a public hospital.

State management being a dangerous experiment, what ought to be the relation of the civil power to that part of the country as long as it continues to contribute, not only for the help of sick paupers, but also, as has been shown it does, in the Highlands and Islands of Scotland for the whole existing population in those poor and remote regions? Fortunately, we have been provided with an answer to this question by the successful results of the action of the Scottish Education Department in parallel circumstances. In the Island of Lewis where on account of the poverty of the population the department found it necessary to give exceptionally large money grants to the schools "my lords" insisted on exceptional powers of interference in the local management of those schools. H.M. inspector has a seat—indeed, the chief seat—on their boards, regulates the appointment and dismissal and pay of all teachers, and really controls the whole management. In like manner, wherever there are exceptional grants, say above 20*s.* per head for each individual on the roll of paupers in such parishes, the Scottish Local Government Board should have the right to appoint one of their inspecting officers to a seat on the parish council with the right of voting on the appointment, dismissal, and salary of the Poor-law doctor. The position, status, and security of tenure of the teachers have been much improved by this system of modified State interference and so, there can be no doubt, would also be the result in the case of parochial medical officers in the Highlands and Islands. Petty saving and petty tyranny would disappear and we would by-and-by have a contented body of well-paid, well-housed, and properly free and independent public servants. At present the Poor-law service is often the very opposite, to the detriment not only of the medical care of the poor but also to the loss and misfortune of those who are better off.

I might enlarge on the need for holidays and, above all, for pensions. But I have said enough at present to show the urgent need for reform. The first step mentioned, that of Government interference, could, I believe, be at once effected by a modification of the regulations for the granting of Poor-law medical relief in exceptional cases, and along with this charge should come, in simple justice to Scotland, not a fixed annual contribution from the Consolidated Fund for the whole of that part of the kingdom as at present, but a frank payment of the one-half of each parish doctor's salary as has long been the case in England, while the proportion, I believe, is still more in Ireland.

I am, Sirs, yours faithfully,

Jan. 1st, 1907. WILLIAM BRUCE.

CYANOSIS AND INDISCRIMINATE SELF-DRUGGING.

To the Editors of THE LANCET.

SIRS,—I have read with pleasure and also with no little benefit the interesting lecture by Dr. Thomas Oliver which appeared in THE LANCET, Dec. 29th, 1906, p. 1772, which warningly illustrates the ill-effects upon the body which may be brought about by the indiscriminate self-drugging with medicaments ordinarily regarded by the public as non-injurious even if non-effectual. It is scarcely to be expected that the lay person should know whether or not certain drugs are or are not more than ordinarily injurious; as a matter of fact, he or she commonly regards them as being safe principally on account of the ease with which they can be procured and the publicity given to the class of medicine by its exposure in the windows and show cases of chemists' shops, contained, as it usually is, in the pleasing and portable little tin-stoppered bottle.

The lecture recalls to my mind two cases which have occurred in my own practice during the last 12 months, in both instances in women, and I should perhaps not have noted the effect of this class of drug had it not been that the symptoms of the second case were practically identical with those of the first. The first case was that of a nurse, aged 30 years, who for some time had suffered from dysmenorrhœa, but which latterly had been of such severity as to cause her to resort to drugging; on the night the incident occurred she had taken two antikamnia pellets but as she got no relief from them within an hour she took two more. In about an hour's time she was seized with violent pains in the lower part of the abdomen, accompanied by an urgent condition of dyspnœa with pallid face, blue lips, ears, nose, and finger tips; the pulse- and respiration-rates were both increased in frequency. She said she had at the time a feeling of impending death. She was given a little brandy-and-water and when I saw her I ordered fomentations to the lower abdomen. She was apparently quite well again in an hour and a half.

The second case, also a nurse, aged 27 years, although robust looking, had suffered six years previously from scarlet fever complicated by pleurisy and albuminuria; she was never free from a slight albuminuria and had recently been troubled with nasty headaches on and off. She was given four antipyrine pellets by another nurse who was in the habit of taking them for headache. She took all four at once and about half an hour later she was taken ill and with the exception of the absence of abdominal pain she had similar symptoms to the previous case, but had a more marked and prolonged initial faint. She was put to bed and was given a little brandy-and-water with hot applications over the præcordial region, and was apparently quite well again in about three hours.

I am, Sirs, yours faithfully,
JOSEPH BEARD, F.R.C.S. Edin., D.P.H. Camb.
Bootle, Jan. 8th, 1907.

THE CASE OF GEORGE EDALJI: A QUESTION FOR OPHTHALMOLOGISTS.

To the Editors of THE LANCET.

SIRS,—Might I ask you in the cause of justice to permit me to put the following question to those of your readers who are engaged in eye practice:—

"Do you consider it physically possible for Mr. George Edalji, whose degree of myopic astigmatism as determined by retinoscopy under homatropine is

Right eye – 8·75 diop. spher.
– 1·75 diop. cylind. axis 90°.
Left eye – 8·25 diop. spher.,

to have set forth upon a pitch dark night with neither moon nor stars, to have crossed country for half a mile climbing fences, finding gaps in hedges, and passing over a broad railway line, to have found and mutilated a pony which was loose in a large field, to have returned half a mile, and to have accomplished it all under 35 minutes, the limit of the the possible time at his disposal? Mr. Edalji did not wear spectacles."

A consensus of scientific opinion upon this point would greatly aid me in getting justice for this young professional man, condemned for an offence which in my opinion he could not possibly have committed.

I am, Sirs, yours faithfully,
ARTHUR CONAN DOYLE, M.D.
Undershaw, Hindhead, Surrey, Jan. 13th, 1907.

AMYL NITRITE IN HÆMOPTYSIS.

To the Editors of THE LANCET.

SIRS,—If I have read him correctly, Dr. Albert Abrams in his two recent letters on the above subject maintains that amyl nitrite inhalation promotes hæmostasis of the lung largely through reflex action. The vapour of the drug stimulates the terminations of the vagus in the nasal mucosa. Thence reflexly the longitudinal muscular fibres of the bronchioles are made to contract and express the blood from the lung parenchyma. This seems overmuch to expect from the "weaker longitudinal fibres." But whether or no these be competent for the task, it is certain that amyl nitrite can render the lung more or less exsanguine without assistance from the nasal mucosa or its nerve supply. In the laboratory demonstrations by Pic and Petitjean, the lung was rendered so anæmic that when incised no single drop of blood escaped. Yet the amyl nitrite responsible for the result *was injected into the femoral vein*. Further, nitroglycerine given by the mouth has proved no mean substitute for amyl nitrite inhalation in some cases of hæmoptysis.

Referring to the inhibitory influence of amyl nitrite on uterine hæmorrhage, Dr. Abrams expresses the opinion that the drug "acts on the fibres of the uterus with secondary constriction of the blood-vessels." An action on the uterine musculature, so far as I know, has not been hitherto postulated of the drug. But even if true, how could such action explain the influence of amyl nitrite on the hæmorrhage which follows removal of parovarian cysts and on that which accompanies rupture of the sac in ectopic gestation?

In point of fact, the only physiological action of amyl nitrite which rests on any secure foundation is the sudden production of vaso-dilation—or, in other words, the sudden inhibition of vascular tone—in wide areas, if not generally; this being of necessity associated with a fall of blood pressure and a compensatory acceleration of the heart beat. All other actions ascribed to the drug would appear to depend on mere inference from preconceived theories. For example, from the relief sometimes afforded by it in the asthmatic paroxysm, amyl nitrite is inferred to have the power of relaxing the bronchial muscles. But the inference is unjustifiable because the view that asthma depends on bronchial constriction remains an unverified hypothesis. The only view of the mechanism of the asthmatic paroxysm which is consistent with the *known* physiological action of amyl nitrite, is the vaso-motor hypothesis: amyl nitrite relieves asthma by relaxing the peripheral vaso-constriction which is an essential factor in the bronchial vascular distension responsible for the obstruction to respiration. I am, Sirs, yours faithfully,
Upper Norwood, Jan. 12th, 1907. FRANCIS HARE.

GAS FIRES.

To the Editors of THE LANCET.

SIRS,—We have read with interest Mr. Francis Jones's letter in THE LANCET of Dec. 15th last criticising the results of the recent inquiry held by the Coal Smoke Abatement Society on gas stoves and should be glad if you can find space for the following reply.

Length of the tests.—While admitting that, within limits, a long test is preferable to a short one, we consider that in practice a full working day is quite sufficient. In this conclusion we are supported by the accepted practice in the case of boiler trials. The purpose of the inquiry being to provide data upon which to base general conclusions as to gas stoves, an investigation into the behaviour of 25 different stoves in different rooms is surely far preferable to a test of only *one* stove in *one* room, however long continued, which was, we believe, the condition holding in Mr. Jones's experiments. We consider it quite impossible to arrive at sound general conclusions as to the value of gas-stoves from such a test, however instructive the results may be in other ways. A peculiarity in the room or stove may vitiate the entire results.

Size of rooms.—We think this is important and must be taken into account in considering the results of the tests. It does not, however, in any way invalidate these results.

Carbon dioxide.—The amount of CO_2 found in the rooms was small and very slightly increased above that in the air admitted. Why should the CO_2 be increased if all the products of combustion are carried up the flue? Our observations showed that the ventilating effect of the stoves was considerable. Mr. Jones does not state what was the ventilating effect of his stove.

Carbon monoxide.—There were three cases when this was detected in the room; one was a flueless stove, another was proved to have some defect in the joints, and the third case was probably also due to a leaky joint. These were exceptions, to be condemned individually, but not to base an adverse general conclusion upon.

Potassium permanganate test.—The dust somewhat vitiated this test. Its results were chiefly negative and not satisfactory as a basis of comparison; no conclusion was therefore drawn from it.

Smell.—Although many stoves caused a smell the fact that in 12 cases it was absent showed that smell is not an invariable accompaniment of gas stoves and is avoidable by proper construction.

Humidity.—The actual humidity of the room air is no guide as to the effect of a stove or fire unless it is compared with that of the air before admission to the room. It was upon the alteration of humidity, therefore, that conclusions were based. In Mr. Jones's tests the temperature produced in the room with the gas fire was higher than that due to the coal fire, he does not state how much; but it is important to note that a difference of 4° F. would more than account for the difference of humidity which he found between the gas and coal fires.

Musk plant test.—No conclusions as to the merits of the stoves were drawn from this test.

In conclusion, Mr. Jones's experiments were carried out in a very small room, of 935 cubic feet capacity, the air of which was obviously vitiated from some source other than the stoves, since the CO_2 often exceeded 10 parts in 10,000 in the morning, and averaged 3·039 in excess of that in the outer air, without any stove or fire in the room. The amount of air passed through the room per hour is not recorded by Mr. Jones, a serious omission; but it would seem from his results that the ventilation was deficient. Further, it is essential (*a*) to determine where the air drawn into your room comes from, and (*b*) to apply all the tests to the air *before* admission which you apply in the room. Otherwise the results are of little value. Mr. Jones did not do this.

It is to be noted that the conclusion drawn from the Coal Smoke Abatement Society's inquiry was not that all gas stoves are good, but rather that there is no inherent necessity why a gas stove or fire should not be as good as, or even better hygienically than, a coal fire, provided it is intelligently constructed and properly fitted to a good flue.

We are, Sirs, yours faithfully,

H. A. DES VOEUX, M.D. Brux,
Honorary Treasurer, Coal Smoke Abatement Society.
JOHN S. OWENS, M.D., A.M.Inst.C.E.,
Jan. 15th, 1907. F.R.G.S.

MEAT DIET AND THE TEETH.

To the Editors of THE LANCET.

SIRS,—I shall be obliged if you will allow me briefly to supplement the remarks made by Dr. Chalmers Watson in THE LANCET of Jan. 12th in reply to a letter by Dr. J. Sim Wallace which appeared in the issue for Jan. 5th. This most interesting investigation is still incomplete but is sufficiently advanced to justify one in publishing some general conclusions which may assist others working along similar lines.

In the first place, one is struck by the essential similarity in the pathological changes occurring in the teeth of rats and of man. In the three rats referred to by Dr. Chalmers Watson the teeth presented all the characteristics of "honeycombed teeth" seen in children who have been improperly fed; and microscopically, too, allowing for natural differences in the histology of the teeth, the defects were similar to those found in honeycombed teeth in the human subject. One would almost feel inclined to apologise to those acquainted with comparative pathology for pressing this matter of the essential similarity of pathological processes in animals and in man, did one not often meet with critics who deny it, although they unhesitatingly accept the principle of the similarity of physiological function.

The second noteworthy fact is that in spite of the striking alterations present in other organs of rats fed on a meat diet the teeth show no evidence of having suffered. This is what any dental physiologist would have expected and should afford food for reflection for those who are lamenting the "degeneracy of the teeth" of the present day. I have for several years had unique opportunities for studying this question in the class of patient who would be most likely to show signs of degeneracy and the results of these experimental investigations have strengthened my conviction that there is no evidence whatever of any "degeneration of the teeth" at the present time. We must, therefore, in my opinion, look in other directions for the cause or causes of the increased prevalence of caries.

I am, Sirs, yours faithfully,
Edinburgh, Jan. 13th, 1907. J. H. GIBBS.

To the Editors of THE LANCET.

SIRS,—Dr. Chalmers Watson contends that a dietary deficient in lime salts does not make the teeth susceptible to caries and that the facts ascertained from his investigation support the teachings of Dr. J. Sim Wallace on this subject. If this be so, it would be well to know further whether the artificial feeding of infants prejudicially affects the teeth, and whether it is true that artificially fed children are specially susceptible to dental caries as has been contended.

I am, Sirs, yours faithfully,
Kingston-on-Thames, Jan. 13th, 1907. W. GEO. CRESWELL.

TUBEROSE SCLEROSIS OF THE BRAIN.

To the Editors of THE LANCET.

SIRS,—I have read with some interest the letter from the editor of *Brain*, published in THE LANCET of Jan. 12th, 1907. He is incorrect in supposing that Dr. A. W. Campbell's work is "apparently unknown" to me. I am well acquainted with Dr. Campbell's paper on Cerebral Sclerosis, published in *Brain*, 1905, and the fact that the case of tuberose sclerosis occurring at the West Riding Asylum, Wakefield, differed in some important respects from the similar cases described by him was the chief reason that made me send my account of the case to THE LANCET for publication.—I am, Sirs, yours faithfully,

MARGARET B. DOBSON, M.D. Lond.,
Pathologist to the West Riding Asylum, Wakefield.
Jan. 14th, 1907.

DUTY-FREE ALCOHOL FOR MEDICAL PURPOSES.

To the Editors of THE LANCET.

SIRS,—May I be permitted to correct one or two errors in your annotation under the above heading in your issue of Jan. 5th, 1907, p. 40. Your correspondent is in error in stating that the new grade of methylated spirit, "industrial methylated spirit," is "undenatured—namely, unmixed with naphtha." The Revenue Act, 1906, provided, it is true, for the omission of the three-eighths of 1 per cent. by volume of mineral naphtha in industrial methylated spirit, but at the same time the wood naphtha was retained in smaller proportion, the new spirit containing the one-nineteenth part of wood naphtha instead of the one-ninth part as contained in ordinary methylated spirit. The suggestion made by your correspondent that medical men should be allowed to employ industrial methylated spirit for external use has been in part anticipated by the Inland Revenue authorities, as the new Act provides for its use in the composition of soap, compound camphor, aconite, and belladonna liniments of the British Pharmacopœia. It remains to be seen whether the presence of 5 per cent. of wood naphtha in industrial methylated spirit will confer on the spirit the irritating properties that are associated with ordinary methylated spirit. If the new spirit should prove to be irritating the matter might be brought to the notice of the Inland Revenue authorities, who might allow a further reduction in the proportion of wood naphtha present or permit the employment of some other denaturing agent. An inquiry has recently been addressed to the Inland Revenue authorities[1] as to whether it is permissible to use methylated spirit in preparations for outward application if methylated spirit is prescribed by a medical practitioner. The secretary to the Board of Inland Revenue replied "that it is illegal to use methylated spirits

[1] Pharmaceutical Journal, Jan. 5th, 1906, p. 2.

in medical prescription or otherwise, in any preparation which can be used as a beverage, or which is capable of being taken internally as a medicine, and the use of methylated spirits in making any other preparations should receive the sanction of the Board before they are made up." This reply refers, of course, to ordinary mineralised methylated spirit but it reveals a willingness on the part of the Board of Inland Revenue to consider special cases. Hence it would be well if secretaries of hospitals were to write to the Board for permission to employ industrial methylated spirit for external applications not mentioned above.

I am, Sirs, yours faithfully,

Jan. 5th, 1907. "HESPERUS."

SIR WALTER SCOTT ON "EUGENICS."

To the Editors of THE LANCET.

SIRS,—Old writers are sometimes unconsciously instructive upon topics supposed by us moderns to be peculiarly of to-day. Thus Sir Walter Scott in "The Pirate," one of his less-known works which is full of good psychological analysis *à la* Thackeray, devotes a long excursus to the subject which during the last year or two we have agreed to call "eugenics." It is the aim of "eugenics" to breed human beings as pedigree dogs and horses are bred. The idea commends itself to a generation as much in love with ideas of State interference and machine-made human institutions as it is ignorant of the long teachings of history and of human nature. Sir Walter Scott is speaking of the queer discrepancies everywhere apparent, as well now as in his day, in the marriage relation. How is it, he asks, that such unlikely people are constantly found mated together? How is it that the short man marries the tall woman and that the idealist becomes the husband of the practical housewife? Scott answers the question in his wise, old-fashioned way: "A moral and primary cause might be easily assigned for these anomalies, in the wise dispensations of Providence, that the general balance of wit, wisdom, and amiable qualities of all kinds, should be kept up through society at large. For, what a world were it, if the wise were to intermarry only with the wise, the learned with the learned, the amiable with the amiable, nay, even the handsome with the handsome?" It would be the world dreamt of by the Eugenic Utopians, who would further, by Socialistic State enactment, endeavour to prevent all the other people becoming parents. Scott as a shrewd man of the world does not entertain the possibility of such prevention for a moment. Indeed, he knows nothing about it, though he writes in 1831, an age familiar with revolutionary schemes and visions even wilder than our own. "And, is it not evident," he continues in his hearty reasonable way, "that the degraded castes of the foolish, the ignorant, the brutal, and the deformed (comprehending, by the way, far the greater portion of mankind) must, when condemned to exclusive intercourse with each other, become gradually as much brutalised in person and disposition as so many ourang-outangs? When, therefore, we see the 'gentle joined to the rude,' we may lament the fate of the suffering individual, but we must not the less admire the mysterious disposition ..... which thus balances the moral good and evil of life:—which secures for a family, unhappy in the dispositions of one parent, a share of better and sweeter blood, transmitted from the other, and preserves to the offspring the affectionate care and protection of at least one of those from whom it is naturally due." The whole passage suggests a very real reconciliation between the argument from Design and the argument from Darwin.

I am, Sirs, yours faithfully,

Jan. 14th, 1906. Q. A.

FREE FEEDING OF SCHOOL CHILDREN AT MARSEILLES.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

The Menu, the Cooking, and the Cost.

THERE are not many children fed at the *cantines scolaires* of Marseilles but those who are fed are well fed; also whatever is done is fully recorded. Thus at the town hall I was supplied with these figures: "School population on July 31st, 1906—boys, 19,266; girls, 19,739; maternal schools (that is to say, schools for children from three to six years old of both sexes), 9473; in the crèches, 275 babies; total, 48 753." In regard to the feeding the last complete statistics are for the year 1905, and these show that 1609 boys frequented the *cantines scolaires*, 1473 girls and 1950 children under six years old attending the maternal schools. This makes a total of 4832 and as the school population was much the same in numbers as it is now this is equal almost precisely to 10 per cent. of the whole. Thus, at Marseilles 90 per cent. of the school children return home for their meals and of the 10 per cent. who avail themselves of the school repast a large proportion—namely, a small half—pay for their food. The following are the exact figures and they are instructive as indicating what the organisers of midday meals in the primary schools of a large seaport town may expect. The number of helpings of soup served to boys during the year amounted to 224.271; of these 117,473 were given gratuitously and 106,799 were paid for. The girls received a little less—namely, 217,363 helpings of soup. They, however, paid for a much larger proportion—namely, 118,522—and only received 98,841 gratuitously. In regard to the schools for little children, or maternal schools as they are called in France, the figures are very different, not only at Marseilles but wherever I have been able to make the comparison. The practice of feeding in the maternal schools is much more general and the extent to which this is done gratuitously is widespread. Thus, instead of only 10 per cent. availing themselves of the *cantines scolaires* we find 1750 out of 9473, or more than 18 per cent. They also received a greater number of helpings, though this can be explained by the fact that at the maternal schools nothing but soup is given and that the children are too young to go home alone in the middle of the day, while at the other schools there are regular dinners with meat, vegetables, &c. The number of helpings of soup served at the maternal schools is set down at 371,568, but what is more important than this large figure, for which an explanation has just been given, is the fact that of all these helpings only 59 327 were paid for and the remaining 312,241 were given gratuitously. Whereas at the boys' and girls' schools the parents managed to pay for more than half the helpings of soups given not one-sixth of those served in the maternal schools were paid for by the parents of the children. This is very natural. The principal use of a maternal school is to offer a shelter to little children while their mothers are at work. Of course, it is only among the poorest sections of the community that the mothers have to work as well as the fathers.

In most, if not all, of the *cantines scolaires* established in connexion with the schools for boys and girls not only soup but a regular meal is provided. As a rule, most of the children have the entire meal but some take the soup only and others do not have soup but only take the courses that follow. These latter in the statistics come under the general heading of "portions." The difference is but slight; thus it has been stated that the boys consumed a total of 224.271 helpings of soup and to this figure I can now add that they also had a total of 225,878 "portions" and they paid for 117,349 of these portions, receiving 108,529 gratuitously, thus again paying for the larger half. The girls consumed 216,276 portions, or 387 portions less than in the case of the soup, while the boys took 1607 more portions than soup, showing a slight preference on the part of the boys for solid as opposed to liquid food. But again the girls were ahead of the boys in regard to payments for they only received 98,925 portions gratuitously and paid for 118,051 portions. Taking the grand total there were in the maternal schools and in the boys' and girls' primary schools 4832 children who during 1905 received soup from the *cantines scolaires;* they paid for 284,648 helpings of soup and did not pay for 528,554 helpings of soup, making a total of 813,202 helpings of soup provided by the *cantines scolaires* in the year. Deducting the 1750 children fed at the maternal schools where only soup is given there were 235,400 portions served to the boys and girls in the primary schools which were paid for and 207,454 which were not paid for, making a total of 442,854 portions. Adding the 813,202 helpings of soup, we get the grand total of soup and portions amounting to 1,256,056. Of these 520,048 were paid for by the parents of the children and 736,008 by the municipality.

The by-law or *règlement* under which the *cantines scolaires* are organised by the municipality bears the date of June 22nd, 1893, and was drawn up and adopted when Dr. Flaissières was mayor of Marseilles. As a doctor of medicine and a sanitary reformer Dr. Flaissières naturally appreciated the importance of securing sufficient food for the children.

At that time, some 13 years ago, there were only three or four schools where meals were provided and these were only given in exchange for payment. Further, such endeavours were absolutely voluntary, untrustworthy, and uncontrolled. So it was decreed that municipal *cantines scolaires* should be established wherever there was reason to believe such "an institution would respond to the needs of the working population." The municipality undertook to provide all the material necessary, an inventory would be drawn up, and the directors of the schools would be placed in charge of this property. Each *cantine* would have a *cantinière* nominated by the mayor and placed under the authority and direct control of the head of the school. A committee of 22 members would be appointed by the mayor, presided over by the mayor or his representative, and would examine the demands made by the families who stated that they were unable to pay for the feeding of their children while at school. The *cantinière* or cateress is paid £1 12*s.* per month as wages. One of her duties consists of warming whatever food the children may bring with them and she must on no account accept any sort of payment from the children for any such service.

This latter is an important consideration. Parents may be able and willing to supply their children with food but if the children bring such food with them it must of necessity be cold. At Marseilles such food may be warmed free of any charge whatsoever. As the community supplies the entire school gratuitously to the children, including the services of the teachers, it was not considered a very great effort to add the services of the *cantinière* and a small space in the kitchen stove to warm the meals. Apart from the midday meal the *cantinière* may sell to the children chocolate and dried preserved fruits but not the ordinary sweets which children hanker after though they are often far from wholesome. The by-law has articles enforcing absolute cleanliness in the kitchen and in regard to all the utensils used; moreover it enters into the detail of the weekly menu. Thus it is stated that on Monday there shall be "lean" soup—that is to say, soup in which there is no meat—but with rice, beans, peas, lentils, oil, or butter it may be nutritive and substantial, while it is rendered tasty by the variety of vegetables used together with aromatic and flavouring herbs. Then follows a *ragoût*. This is a generic term for meat braised or stewed in conjunction with other, generally vegetable, ingredients. On Monday this stew, it is proposed, should be made of the neck or breast of mutton, with potatoes, haricot beans, or Italian paste of the macaroni kind. On Tuesday, instead of a lean (*maigre*) there is to be a fat (*grasse*) soup—that is to say, a soup made with meat, probably the national *pot-au-feu*, or beef slowly simmering in a great variety of vegetables, with burnt onions to colour and thyme and garlic to flavour. Thus a beef soup is obtained which is not insipid like English beef-tea. Then follows the beef itself, not the stringy, tasteless fragments of beef which remain after beef-tea or soup has been made in an English kitchen and which are only fit to be thrown to the dogs but good meat from which firm slices can be cut. As this meat is impregnated with the flavour of numerous vegetables it is savoury though it is only boiled beef. Of course for this purpose prime pieces such as the sirloin are not employed. On the other hand, if the inferior pieces of beef were roasted, as is very generally the custom in England, they would be tough and tasteless. By the above process the meat is rendered at once tender and tasty though only the cheaper pieces or joints are used. Very generally some of the vegetables from the soup are served with the beef when hot. This, indeed, is the French national dish. *Bouillon et bœuf* are to the Frenchman what roast beef and Yorkshire pudding are to the Englishman. The British fare is good when the quality of the beef is good; but the French fare is good even when the quality of the beef is inferior. This is an all-important consideration as everyone cannot be fed on prime joints; the cheaper portions must also be consumed especially where economy is necessary. Thus, though meat is very dear in Paris, at all the ordinary workmen's restaurants an *ordinaire* can be obtained for 4*d.* This is the usual name given to a plateful of *bouillon* followed by a large thick slice of the beef with which the *bouillon* has been made. The meat is accompanied with some of the vegetables if it is hot, or pickled gherkins or the like if cold. By spending 4*d.* or 5*d.* more, wine, bread, and cheese can be obtained, and thus for from 8*d.* to 9*d.* the workman has a substantial if a very plain meal. On a smaller scale this is the sort of meal suggested in the Marseilles municipal by-law for the *cantines scolaires* on Tuesdays. Evidently it is calculated that the amount of beef employed will not make soup for two days, as on the Wednesday there are vegetable soup, macaroni, and beef, probably braised or fried. Thursday is the weekly holiday. On Friday there are another vegetable soup and a *ragoût* of whatever meat may be preferred, and on Saturday we find again the *ordinaire*—namely, the *bouillon* and the beef and the vegetables with which it has been made. Now comes the important question of the quantity. This also is specified in the by-law. The helpings of soup, whether vegetable or meat soups, are set down at 30 centilitres, or half a pint. The meat, whether in the form of boiled beef or a stew, is given in portions of 50 grammes, or one and two-thirds of an ounce; with half a pint of potatoes, haricot beans, lentils, or other vegetables. Latitude is allowed to modify this menu according to the season of the year and the charge made is 5 centimes for the soup and 10 centimes for the portion of meat, that is 1½*d.* for the entire meal; but in the higher schools frequented by older children it is allowable to charge a little more for larger helpings.

All the police stations at Marseilles keep paper tokens, tickets, or cheques which the parents of the neighbourhood buy and give to their children. These are collected by the teachers the first thing in the morning and given to the *cantinière* who then knows how many meals she must prepare. If, however, a child arrives at school without a cheque for a meal and the teacher thinks he needs food the teacher may give soup provisionally. The teacher must then at once communicate with the parents and the town authorities. The parents must apply personally or by writing to the educational department at the town hall. Their case is investigated and if it is thought that they are entitled to free meals for their children they receive the cheques directly from the municipality instead of having to buy them at the nearest police station. When, however, the child arrives at school no one knows whether the cheque which he holds in his hand has been bought and paid for or has been received gratuitously by the parents. Thus at Marseilles, as at Paris and elsewhere, the greatest precautions are taken not to humiliate the children. The cateress has to enter in a book, and to keep careful account of, all her purchases and all the helpings of soup or meat which she has served. Every fortnight she must present her books at the town hall and then all the cheques which she has received for meals are converted into cash. The money which she thus receives must be all spent on food and not on any kitchen utensil, or fuel, or soap, or dishcloths, or any other item. Thus it will be seen that a considerable portion of the cost of the meals is paid for by the municipality even when the parents purchase the dinner cheques for their children. Moreover, the 22 members of the committee are supposed to pay surprise visits at meal times and to weigh at least five portions and thus to verify that the proper amount is given.

When I was at Marseilles I visited the communal school for boys in the rue Puget. This is an old house not built expressly for a school. The room where the meals are served gives on to the play-yard and is rather dark. The tables were covered with tin which was easy to keep clean. There were no serviettes as I had seen at the Paris canteens. Some 60 boys were at table; a few drank water but the majority had brought a little of the ordinary red wine of the country with them. They probably drank about two ounces of wine containing 10 to 12 per cent. of alcohol, to which about 100 per cent. of water was added. A large proportion of those who were not able to pay for their meals were at least able to pay the fraction of a farthing which so small a quantity of wine cost. The menu on the day of my visit consisted of potato soup followed by beef and macaroni. The latter was not the tasteless, insipid macaroni boiled in milk as served in England. It was *macaroni au gratin*. The water had been well drained away, then the macaroni was mixed with butter and cheese, sprinkled with bread crumbs, and placed in the oven till it had a golden, crisp, and tasty crust. The beef was lean, cut into portions before it was cooked and then served with a sauce that was a real work of art. I had just arrived from Gibraltar, having travelled on board a well-known P. and O. steamer. Here as a saloon passenger I was supposed to enjoy every refinement and luxury. But I am bound to state that on board ship it would have been impossible to obtain as delicate a sauce as that which I tasted at the

cantine scolaire and which was given to what in England would be described as pauper children. My visit to the Marseilles *cantines scolaires* helps to explain how this has come about, for here the poorest section of the population are taught how to render the refinements of the table accessible to all. Artistic cooking is not a question of money but of good taste, of skill, and of painstaking. It can therefore be applied just as well to a dinner of three courses costing only 1½*d.* as to an extravagant banquet. But, then, everyone in France is more or less a cook and takes a genuine and technical interest in the matter. The head-master at the rue Puget school had spent hours in discussing menus with the *cantinière*. Such discussions were not necessary so far as the service was concerned but were pleasant and interesting to both parties. Personally, I raised the question of finance, for 1½*d.* seems a very small sum for a full meal. Thereupon the head-master began to dictate what an *ordinaire* for 50 boys would cost. Beef he put down at 24 sous the pound. It is curious that at Marseilles more than at Paris the people still talk of sous. Three kilogrammes would therefore cost 3 francs 60 centimes. Then there might be one kilogramme of Italian pastes, 50 centimes; six kilogrammes of potatoes, 60 centimes; half a litre of oil to bake the potatoes, 50 centimes; salad, 40 centimes; and flavouring ingredients, 25 centimes. This makes a total of 5 francs 85 centimes and would be enough for 50 pupils who at 15 centimes each would pay 7 francs 50 centimes, so there would be a surplus of 1 franc 65 centimes remaining in hand. Yet the 3000 grammes of meat divided by the 50 pupils would give 60 grammes to each pupil or ten grammes more than the amount stipulated in the by-law. As the meal costs less than 1½*d.* there is a large margin for the purchase of a better quality of meat, 6*d.* a pound being a small sum to pay for beef. But then, as explained above, this inferior quality of beef is rendered tender and tasty by the method of cooking.

At the Rue Puget school the 60 boys who remained for their midday meal were, I was informed, for the most part children of shop assistants and small tradesmen. On that day 13 of them were not able to pay for their food and had free tickets from the municipality. The master regretted that a greater number did not dine at school where the meals are better, cheaper, and cleaner than those which the children generally had at home; moreover, he insisted that appetite was contagious and the weakly, delicate children who did not care for their dinner ended by following the example of the more robust and, if only for the sake of getting back to the playground, managed after all to eat their food. This was less likely to be the case if they went home. It was not only a question of feeding the hungry but of enticing those who were not hungry to eat what was necessary for their sustenance.

At the girls' communal school of the Rue St. Savournin there was a meal on the day of my visit that reminded me a little of English extravagance. There were 40 girls and they each had a small, plain, fried beefsteak; there was no sauce, nothing whatsoever to disguise the lack of flavour or the toughness of the meat. Consequently, it being necessary to buy more expensive meat, two and a half kilogrammes of steak at 2 francs per kilogramme had been purchased. This made 5 francs for the 2500 grammes of raw meat which being divided amounted to 62 grammes, or barely more than two ounces of uncooked steak for each of the 40 pupils. But 40 times 15 centimes only make 6 francs, so there did not remain more than one franc for the rest of the dinner. Evidently too much had been spent on the meat. Two francs a kilogramme is equal to 10*d.* a pound of 500 grammes, whereas the English pound is only equal to 450 grammes; the cost may therefore be translated as equal to 9½*d.* the pound, and steak obtained in England for that price is not likely to be particularly succulent or tender. The really good part of this dinner was the fried potatoes and the salad that accompanied the steaks. But the oil for frying the potatoes doubtless cost 50 centimes and it was the oil that imparted to the potatoes their beautiful golden colour and their crisp, delicate crust. Then the salad must have amounted to another half franc, while the seasoning, the traditional three parts of olive oil to one of white wine vinegar, together with suitable herbs, must have cost as much again. The potatoes and the salad for the 40 pupils must have necessitated an outlay of at least another 2 francs, so that with the steaks at 5 francs this made 7 francs or more. Thus I conclude that the attempt to give a steak, however small and inferior in quality, meant a deficit of at the very least one franc, or an expenditure of 20 per cent. more than the receipts. Above, however, I have shown how a satisfactory and much more artistically cooked meal can be given for less than 15 centimes a head. Doubtless an occasional change is beneficial and what is economised on the one meal can be spent on the other. Thus it sometimes comes to pass that the children are given a plain piece of steak but such extravagance is the exception, not the rule.

MILK IN SMALL GENERAL SHOPS.

(FROM A CORRESPONDENT.)

I.

THE question of the milk-supply of England in general, and of London in particular, has been widely discussed in recent years. It has been shown that the methods usually employed on dairy farms as regards the conveyance of milk by train and its distribution after arrival in London or other great towns are all susceptible of much improvement. The fact, however, undoubtedly remains that, although progress towards insuring a satisfactory milk-supply has been made, there is still need for far wider and more radical reforms in this direction. The problem of obtaining a milk-supply comparatively free from pollution is one that must be met in all the stages through which milk passes from the cow to the consumer. At the present time I shall merely consider somewhat briefly the milk question from the standpoint of its sale in small provision shops. Of course, it is obvious that milk is frequently badly polluted before it reaches the small retailer, but that is no valid reason why precautions should not be taken to guard it from contamination whilst it is in the shop. That such precautions are not generally taken has been freely stated in medical and lay journals during the past few years. The ordinary individual and, to some extent, the medical man, have little idea of how largely milk is sold in small general shops in all parts of London. The statement has been made on excellent authority that about 70 per cent. of the total milk-supply of London is to be found in the small shops. That being so, it is a matter of infinite importance that all due care should be taken to safeguard the food on which the greater part of the bottle-fed infant population in the poorer quarters of large cities should chiefly depend for nourishment, though it is probable that a considerable amount of the milk given to the poorer class of children is a condensed milk of one sort or another.

In order to convince myself as to the conditions prevailing in small general shops in poor localities in which milk is sold I determined to make a short tour of inspection through a few of the poorest parts of London. I must, however, disavow any intention of treating the matter from a scientific point of view; my object was simply to use my senses of sight and smell to the best of my ability and to gather general impressions, perhaps, rather than to gain any very definite details. It struck me at once that the East End was obviously the district where the greatest number of poor was gathered together and that there I should be able to observe in most favourable circumstances the manner in which the retail milk trade was conducted. I accordingly betook myself to that maze of mean streets and monotonous drabness known as the East End and selected for my first series of observations a well-known street not far from the goods station of the Great Eastern Railway in Shoreditch. The portion of this street through which I passed may be described, I suppose, as typical of that part of London—that is to say, it is dirty, dull, and squalid. The monotony of the houses is only relieved here and there by conspicuously glaring public-house fronts, while numerous small general shops are characteristic features of the neighbourhood.

The first shop into which I entered was about 18 feet long by 14 feet wide and fairly lofty. It was furnished with a counter on one side stretching from the door almost to the end of the room. The shop was packed with a heterogeneous mass of goods, mainly eatables, but intermingled with these were other articles of domestic use, as firewood, paraffin oil, and matches. The contents were scattered in all directions, on the floor, on shelves, while the counter was crowded with a variety of miscellaneous articles, not omitting samples of fish. The door of this establishment stood wide open, so that dirt and dust had free ingress, and judging

from the littered state of the street outside the prediction may be made confidently that in dry weather a plentiful supply of dust and of even more objectionable varieties of dirt would be carried in past the door in no inconsiderable quantities. The milk, contained in an ordinary tin pail, had its place amid this promiscuous heap of provisions and household supplies of various kinds, in close proximity to the open door and consequently in the most convenient situation to collect any atoms which might float in. In this instance the milk was partially covered, but inasmuch as the cover did not fit closely but left sufficient space on all sides for any quantity of foreign matter to gain an entrance, it might as well have been dispensed with. It cannot be said that the shop in itself was especially dirty nor was it clean enough to clash with its environment. The persons, a man and a woman, who served in the shop were by no means personally clean. I was not near enough to observe whether the milk pail was clean, but I did notice that the dipper was placed on the cover when not in use, thus affording ample opportunities for it to collect extraneous matter, some of which would be afterwards conveyed to the milk.

The next shop to which I paid a visit was situated a few doors from the first one and was in most respects in a worse sanitary state. It was much smaller, more dingy, and more overflowing with eatables and otherwise. This shop cannot have been longer than 12 feet and in width was about 8 or 9 feet. It was low in the ceiling and in most of its external aspects presented a decidedly grimy appearance. The shelves and the counter were heaped with many varieties of articles necessary to the small housekeeper. The milk was contained in an open receptacle and quite close to it, and almost on a level with it, was a dish of cured herrings. As in the former shop so in this shop—paraffin, firewood, and provisions were mixed together. In this case, too, the factor of personal cleanliness did not enter very intimately into the scheme of things. Of course, at this time of the year there were no flies in evidence, but one can imagine easily that in the sweltering days of midsummer such articles of food as fish and jam would attract flies in great numbers and that these would convey dirt to the milk, sometimes even dangerous germs. I visited two or three other shops of a like nature in the same vicinity, but the conditions of these differed only in degree from the two former shops which I had visited.

(To be continued.)

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Meals for School Children.

AT the last meeting of the Manchester city council it was proposed and carried that the Act of 1906 be adopted and that the details of providing meals for school children should be referred to the education committee. In speaking to the motion, Sir James Hoy thought it would probably be proposed to establish canteens in the worst districts and that payment should be charged at the rate of 1*d.* a meal. But as he said there would be many unable to pay these would not be left unfed. Members of the council of various political views seemed to agree on this question of feeding the children. In Manchester the cost is expected to be about £8000 a year, but as a rule these prophetic estimates are exceeded. One gentleman referred to some investigations by the Chorlton guardians, when out of 1295 applications relief was refused in 1000 cases. Sir James Hoy said the committee would try to ascertain the real cases deserving of their relief. Everyone sympathises with the children sent ill-fed and hungry to school and knows that the costly and elaborate compulsory education machine can only be run at a loss when those for whom it has been devised are in the apathetic and exhausted condition of semi-starvation. No doubt from the physical standpoint it will be good for the country that the next generation of men and women instead of being stunted and starved in childhood should have been well fed. But it is possible that the sense of parental responsibility and the ties of family may become so far relaxed that the physical benefit will prove to be purchased at a high rate.

Seamen's Sickness and the Port of Manchester.

On Jan. 7th the Manchester port sanitary authority discussed the subject of the notification of sickness on board ship by the captains of vessels arriving at the docks. Quite recently a sailor who left a vessel at Salford had to be taken a few days afterwards to the Ladywell Sanatorium suffering from typhoid fever. No notification of the illness had in the meantime been given. Mr. W. F. Dearden said he was trying to devise a scheme for the notification of all cases of sickness and complained of the slackness of ships' officers as to these matters. As was stated some time since, powers have been obtained for the inspection of food imports to Manchester, and in view of the increased work this will entail it was decided at the meeting to appoint two new inspectors.

Long Service.

The Macclesfield board of guardians has recognised the great value of the services rendered by Mr. James Brierley Hughes by passing a resolution congratulating him on the completion of 40 years as medical officer and public vaccinator. This is not his only claim to honourable mention, as he is also Surgeon-Lieutenant Colonel 4th Battalion Cheshire Regiment.

Dangers to Infant Life: Compulsory Notification of Births.

Blackburn is very properly concerned with schemes for the reduction of the high death-rate among infants, one of which is the encouraging of the mothers to suckle their children. This has the especial approval of the health committee of the corporation which is going to appoint two women sanitary inspectors. It is also seeking powers for the compulsory early notification of births. The high mortality among infants in the districts where the women work till their confinement and get back to the mill as soon afterwards as they can creep about is not to be wondered at. No doubt, too, the mill or other work of the women with young infants leads to the great use of comforters, soothing syrups, or whatever the opiate is called in the districts where they live. The brisk sale is where the women work from home. It is said that in Coventry about 12,000 doses of "soothing syrup" had been given to babies in one week, and that in one Welsh colliery district three quarts of laudanum were sold every week for the same purpose. The strange thing is that so many survive. In an address to women the other week at Preston Miss F. Zannetti, inspector to the Chorlton board of guardians under the Infant Life Preserving Act, who sees more than most people how heavily the babies are handicapped in their struggle to live through their first 12 months, after enumerating many of the dangers to be overcome or avoided, went on to say that the personal care and nursing of the child by its mother was the chief essential to its well-being and contrasted the high death-rate of 50 per cent. in the bottle-fed children with the 7 per cent. of those fed naturally by their mothers. During last year there had been on the register 18 cases, comprising 49 children who had been nursed in 19 individual houses under the Act, and in all but three cases the nursing was satisfactory. There is one provision in which there might be some improvement. No matter how many children a woman nurses in succession, unless she has the care of two or more at the same time she does not come under the Act. This allowed of what had happened in Miss Zanetti's district—namely, that a woman who had been refused a licence had taken in two children, though not at the same time. These nurse children are seldom, if ever, taken from love or the pleasure of tending an infant but as a purely business matter to increase the family income. Miss Zanetti has sometimes been told that it paid the rent, and rent collectors have been asked to wait a day or two, as "the child's money had not been sent yet." There is a certain amount, probably a good deal more than we imagine, of profitable business done by the more astute of these women. One of them in Manchester had a child brought to her on the day of its birth, 7*s.* a week being paid for it. And though the chances might seem slight it lived through its early days and when five months old was sent to a woman in Yorkshire who had advertised for a baby. This person took it with a premium of £25 but like a clever financier she passed it on to another who took it for £20, so the Yorkshirewoman made £5 by the transaction. No doubt some of these women are humane and even tender, but recent revelations of children's calcined bones and so on show that this traffic in babies should be most carefully watched.

Apart from Christian or even merely humane motives the lives of these hapless waifs should be jealously guarded. In these days of a steadily decreasing birth-rate and of high infantile mortality they are of value to the State; they are assets which the country cannot afford to throw away, especially in the face of such statements as that which appeared the other day of a Lincolnshire district where the infantile mortality was 287·7 per 1000 births.

Jan. 15th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Milk-supply of Cardiff.

AT the last two meetings of the Cardiff health committee it has been alleged that there is a considerable amount of milk sold in Cardiff which has been diluted. The milk churns are said to be tampered with at the railway station, and as there is only one inspector who is authorised to take samples it is apparently not difficult for the milkmen to watch his movements and thus to escape detection when systematically impoverishing the milk either by actually diluting it with water or by mixing a supply with skimmed or separated milk. In order to enable the committee to decide as to whether the Sale of Food and Drugs Act was being properly carried out in Cardiff Dr. E. Walford has submitted a report which shows that when compared with other large towns in England and Wales the number of samples per 1000 of the population taken for analytical examination is rather higher in Cardiff than elsewhere, while the proportion of adulterated articles is very much below the average. For example, in 1905 out of 388 samples of milk taken in Cardiff only 14, or 3 6 per cent., were adulterated, while in the administrative county of Glamorgan 7 per cent. of the samples examined were adulterated and in the neighbouring borough of Newport about 10 per cent. of the samples examined are found to be adulterated. Dr. Walford suggests that the assistant inspectors of nuisances should be appointed to act as inspectors under the Act and be thus enabled to take samples. In order to carry out this suggestion it will probably be necessary formally to appoint them in the first instance market inspectors, a procedure which has been adopted in Newport. If a sufficient number of inspectors are appointed, and if they are provided with bicycles to enable them to travel speedily from one part of the town to another, there ought to be no difficulty in carrying on a vigorous campaign against the defaulting milk vendors and insuring a pure supply of milk to the inhabitants.

River Pollution in Monmouthshire.

Among the duties imposed upon sanitary authorities is that of administering those Acts of Parliament which have for their object the prevention of the pollution of rivers. As a rule, they are not particularly active in carrying out this duty and their apathy is, no doubt to a great extent, accounted for by the fact that they are themselves only too often the greatest offenders against the provisions of the Acts. It is not surprising to find, therefore, angry protests from local sportsmen when a river celebrated for its fishing is being polluted. In the annual report of the board of conservators of the rivers Usk and Ebbw in Monmouthshire attention is drawn to the serious pollution of the Usk by the corporation of Newport. Samples of water taken from streams and tributaries of the river have upon examination revealed the existence of serious pollution both by sanitary authorities and from works situated on the banks of the streams, in one instance the stream being practically an open sewer. The Board of Agriculture and Fisheries has been communicated with by the conservators and it is anticipated that some steps will now be taken to lessen the pollution.

Housing of the Working Classes in Newport.

A recently issued report of Dr. J. Howard-Jones, the medical officer of health of Newport (Mon.), contains statistical information of much interest relating to the housing of the working classes. He has collected details respecting 1760 cottage houses, including the rental paid and the number (1) of rooms in each house, (2) of inhabitants distinguishing between adults and children, (3) of families occupying the house, and (4) of the lodgers taken in. The average weekly rental was found to be equal to 1*s.* 5*d.* per room. The average number of persons per house was in one district 7·5 and in another 6·64. The average number of persons per room was 1·14, a satisfactory feature when it is remembered that the Registrar-General suggests that a standard of overcrowding should be where there are more than two inhabitants per room. A little more than one-half of the total number of houses were found to be occupied by more than one family and in about 7 per cent. lodgers were taken in.

Bristol University College, Colston Society.

The eighth annual dinner of the Bristol University College, Colston Society, was held on Jan. 11th in the lecture hall of the college under the presidency of Sir William S. Church, Bart, K.C.B. The Colston Society has been instrumental in rendering useful financial help to the Bristol University College and has also done much to draw public attention to the scheme for a West of England university, with Bristol as the centre. The Lord Mayor of London, Sir W. Anson, M.P., the Vice-Chancellor of the University of Oxford (Mr. H. Warren), and Mr. Henry Hobhouse were among the speakers, and they all advanced strong arguments in favour of a university for Bristol. The collection amounted to £489, the second highest which the society has had.

Sanitary Matters in the Tavistock Rural District.

At a meeting of the Tavistock rural district council held on Jan. 10th certain statements made by Dr. R. Deane Sweeting, a Local Government Board inspector, with respect to the sanitary condition of the district were considered and the chairman presented a report which took the form of a detailed reply to Dr. Sweeting's criticisms. The circumstances have been already mentioned in THE LANCET. The chairman's report stated that the council was willing to carry out Dr. Sweeting's recommendations in reference to disinfection, and in conclusion requested the Local Government Board to sanction the appointment of Mr. C. C. Brodrick as medical officer of health for the ensuing year, as the council was quite satisfied with the manner in which his duties were performed. The council adopted the report and decided to send a copy to the Local Government Board.

Sir Squire Bancroft at Yeovil.

Sir Squire Bancroft recently gave a recital of "A Christmas Carol" at the Yeovil Assembly Rooms in aid of the funds of the Yeovil Hospital. Sir Spencer Ponsonby Fane, who presided, said that Sir Squire Bancroft's charitable endeavours had now realised £15,000.

Jan. 14th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Edinburgh Annual Report.

THE annual report of the University of Edinburgh for 1906 has just been issued. The total number of matriculated students was 3199 (including 463 women), the highest number reached for 13 years. Of the total 1500 (including 16 women) were in the Faculty of Medicine; and of this number 681 belonged to Scotland, 301 were from England and Wales, 136 from Ireland, 82 from India, 272 from British colonies, and 28 from foreign countries. The number of women attending the special school for women with a view to graduation in medicine was 71. The number who graduated was 187 (including 17 women). The number of graduates who took the M.D. degree was 90 (including two women). The diploma in tropical medical and hygiene was conferred on five candidates, while the special certificate in diseases of tropical climates was conferred on 60 candidates (including eight women). The total annual value of fellowships, scholarships, bursaries, and prizes in the Faculty of Medicine amounts to £3630. A sum of £600 per annum is available for the encouragement of original research. Under the paragraph devoted to the Carnegie foundation it is noted that it has so far not effected a manifest increase in the number of students but that it continues to be noticeable that many who avail themselves of the section of the scheme which provides for the payment of class fees take out a larger number of classes than they would probably otherwise have done. Personal changes in the professoriate and in the names of lecturers are given in detail, but these have been noted in THE LANCET at the time when the changes were

made. The changes on the Board of Curators of Patronage made during the year were the substitution of Sir William Turner as representing the University Court in place of Sir Patrick Heron Watson, and of Lord Provost Gibson and Bailie Dobie as the representatives from the town council.

University Preliminary Examinations in Scotland.

In the medical preliminary examinations for the Scottish universities the number of candidates and the number of failures are as follows: In the University of St. Andrews, 21, of whom 9 passed in all subjects, 2 in two, and 3 in one, and 7 failed in all; in the University of Glasgow, 107, of whom 30 passed in all subjects, 4 in three, 11 in two, 29 in one, and 33 failed in all; in the University of Aberdeen, 31, of whom 10 passed in all subjects, 4 in two, 8 in one, and 9 failed in all; and in the University of Edinburgh, 147, of whom 51 passed in all subjects, 2 in three, 19 in two, 43 in one, and 32 failed in all.

The Lord Rector's Address at the University of Edinburgh.

The Right Hon. R. B. Haldane, the Lord Rector of the University of Edinburgh, delivered the rectorial address in the M'Ewan Hall on Jan. 10th. The address, it is hardly necessary to state, was of a very high order and all interested in university life and work will find it well worthy of perusal. It is gratifying to be able to state that the students conducted themselves with the utmost decorum. There was a torch-light procession at night.

A Well earned Compliment to Dr. W. Bruce.

The members of the Scottish Branch Council who had been associated with Dr. Bruce in the General Medical Council entertained their old colleague at dinner on Jan. 12th, at the North British Hotel, Edinburgh. Sir William Turner, K.C.B., who occupied the chair, proposed Dr. Bruce's health, congratulating him on the good work which he had done in the Council and expressing the high estimation in which he was held. Dr. Bruce replied in feeling terms.

Royal Medical Society.

This society met on Jan. 11th, Dr. N. S. Carmichael being in the president's chair. A dissertation on the Modern Treatment of Fractures by Dr. Wells was read, in the absence of the author, by Dr. J. Gilmour. Dr. W. O. Sclater, B.Sc., read notes of a case of Hemiplegia, and a discussion followed.

Waste of Infant Life in Glasgow.

In its attempt to deal with the problem of reducing its large infantile mortality Glasgow is in at least one respect following the example set by Huddersfield. In one of the most densely populated parts of the city there have just been posted handbills stating that with a view to assist in the reduction of the infant mortality in that district the committee of the Anderston and District Health Association hereby makes offer of a gift of £1 sterling to the mother of each child born between Jan. 1st and June 30th, 1907, provided that the child survives the first year of birth.

Death of Principal Story.

To those who take an interest in the advancement of the cause of education in our Scottish universities the announcement this week of the death of the Rev. Principal Story of Glasgow University must have caused considerable regret. Since 1898 he had held the high office of Principal with much honour to himself and signal advantage to the University. Although previously to his appointment to this position he occupied a chair in the theological faculty, yet it is probably the faculties of medicine and science which have benefited most under his rule. It is true that many factors were at work in bringing this about, yet there is no doubt that the development in these faculties would have been much hampered had it not been for Principal Story's clear comprehension of the ever-increasing demands of the age for fresh equipment and new methods in teaching scientific subjects. He entered upon his duties as Principal at a time of transition and immediately with characteristic energy he set to work and in a short time collected by public subscription a sum of about £100,000 for the purpose of adding to the resources of the University. The handsome buildings, class-rooms, and laboratories for the students of natural philosophy, physiology, materia medica, and medical jurisprudence which have just been erected are the result. It was also, of course, during Principal Story's tenure of office that Mr. Carnegie came forward with his generous gift to the Scottish Universities and of this Glasgow received a share. At the present moment there is no doubt that in his administrative capacity Principal Story did much for the University, but really how much by his foresight and business ability he achieved in this respect only time will show.

Matriculated Students at the Universities of Glasgow and Edinburgh.

A statement has just been issued giving the numbers of the matriculated students in the different faculties of the Universities of Glasgow and Edinburgh for the year 1906, and along with it is published for reference the corresponding figures for the last 18 years. In almost every faculty, with the exception of that of science, which was not instituted till the year 1893, there is a marked falling off in the numbers. As regards medicine, in the University of Glasgow for the year 1906 there were 626 matriculated medical students, as compared with 645 in 1905 and 818 in the year 1889. This means a decrease of 192 in 18 years. In the University of Edinburgh the matriculated students in medicine in 1906 numbered 1465, as compared with 1475 in 1905 and 2025 in the year 1889. This shows a falling off in the numbers to the extent of 560 in the past 18 years. What the reason of this decrease is it is a little difficult to understand. One would naturally have expected that with the institution of the Carnegie scheme the numbers of students would have increased considerably in the last few years, but apart from economic conditions outside the University this has probably been counterbalanced by the raising of the class fees and the higher standard of knowledge demanded for the entrance and other examinations.

Grants by Glasgow Corporation for Medical Objects.

The special subcommittee of the finance committee of Glasgow corporation, which was appointed to deal with the various applications for grants from the "Common Good Fund," has decided to make, amongst others, the following recommendations: (1) that a contribution of £3000, payable in three equal yearly instalments, be granted to the Royal Hospital for Sick Children towards the cost of the proposed new hospital on the understanding that the directors will choose a site satisfactory to the finance committee of the corporation; (2) that a contribution of £1500, payable in three equal annual instalments, be granted to the Glasgow Cancer Hospital towards the cost of the proposed extension of the hospital and research department; (3) that a contribution of £900, payable in three equal annual instalments, be made to the funds of Anderson's College Medical School; and (4) that a donation of £50 be made to the funds of the National Society for the Prevention of Cruelty to Children.

Jan. 15th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Dublin.

THE deaths registered in the week ending Jan. 5th were equal to an annual death-rate of 31·5 per 1000, as recently reported in THE LANCET. The average for four weeks amounted to 26·4 per 1000. This is a melancholy state of things in the absence of any special epidemic. The medical superintendent of Cork-street Fever Hospital reported on Jan. 10th that the admissions there were comprised chiefly of cases of measles and scarlet fever with diphtheria, while the number of enteric fever patients had declined. The main drainage system has now been in operation for some months but, as was anticipated, it does not seem to have the least influence in lowering the mortality of the Dublin registration area. It was recently reported that a severe epidemic of scarlet fever prevailed in the Kingstown township, but the statement has been authoritatively disproved. The members of the council there are doing whatever they can to maintain the health of the district. On Jan. 14th a new refuse destructor, which cost £5000, was formally handed over to the authorities by the Horsfal Destructor Co., of London and Leeds, and is now in use.

Epidemics of Typhoid Fever.

For some time there has been a serious outbreak of typhoid fever in the neighbourhood of Jordanstown, on the west side

of Belfast Lough, due, it is said, to contagion by milk, while at Holywood, on the opposite side of the same lough, there is also an outbreak, which has been shown to depend on permeation of the surface soil in the affected areas with sewage matter due to defective joints in the sewers.

Citizens' Sunday in Belfast.

In Belfast on Jan. 13th special services were held in the various churches urging the importance of the citizens taking a more active part in the management of civic affairs. The rector of St. George's Church (Rev. Dr. H. D. Murphy) delivered a very able and outspoken sermon, in which he said that they could not avoid putting down to the corporation as a whole the charge of incapacity in managing civic affairs. He urged his hearers at the approaching municipal elections to give their votes to the man whom they considered upright, conscientious, and honourable, the man who had no private ends to serve, the man whom they would be prepared to appoint director of a concern in which they were shareholders.

Jan. 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Action of the X Rays on Gestation.

M. Sébileau of Bordeaux has submitted doe rabbits after impregnation to the action of the x rays at various stages of gestation. Some of the animals had only one exposure of considerable duration, such as is used in radiography, while others had repeated exposures for various periods. The result of these observations was to show that whether there was only one exposure or a number of them the effect of the x rays was, if not to induce abortion, at least to retard the date of parturition and to inflict serious injury on the progeny, which exhibited a falling away from the normal vigour and weight in direct proportion to the number and length of the exposures. M. Sébileau described his observations at a meeting of the Biological Society held on Dec. 22nd, 1906.

The Timorousness of Oriental Nations.

At a meeting of the Society of Hypnology and Psychology held in November, 1906, M. Damoglou said that in Turkey and Egypt timorousness constituted an endemic and hereditary mental condition. His investigations tended to show that this was due to a mental bias which has been developed as the result of a system of absolute and irresponsible despotism having reigned for centuries throughout all classes of society without distinction of race, nationality, or religion. Children had to keep absolute silence in the presence of their parents, young men in presence of their elders, apprentices in presence of their masters, and so on. Ever at the mercy of despotism and arbitrary treatment the Orientals lived under the dominion of fear. Passive creatures, having no will of their own, no opinions, and no individuality, their timorousness too often rendered them addicted to lying, trickery, and hypocrisy.

Cancer of the Pharynx.

At a meeting of the Surgical Society held on Dec. 26th 1906, M. Hartmann read for Dr. Vallas a communication describing 19 cases of pharyngectomy for cancer of the pharynx. The results which he has obtained marked an improvement in methods of treatment. Among the 19 patients operated on there were 12 recoveries and seven deaths. In all the cases the lesions were extensive. A thesis by one of his pupils, who reported ten operations performed for cancers of limited area, mentioned that after the ten operations there were nine recoveries and one death. As sequelæ to the operations performed by Dr. Vallas there were three early relapses among the 12 successful cases, but with the remainder there was no recurrence until a period varying between three months and 10 or 12 months had elapsed. The scale of the operation must be in accordance with the extent of the lesions. In general a lateral slightly curved incision passing above the hyoid bone gave access to the seat of the disease; the subsequent steps of the operation must be determined by the circumstances of the case.

Complete Outward Dislocation of the Knee.

At a meeting of the French Society of Military Medicine held on Dec. 20th, 1906, M. Epaulard described a case of complete outward dislocation of the right knee. The patient was a soldier who had a violent fall from his horse during manœuvres while it was at a gallop. The tibia was withdrawn from the femur for a distance of six centimetres. The part was not very painful except at the level of the internal condyle of the femur at a point corresponding to the insertion of the internal lateral ligament. Reduction was easily effected under chloroform and the patient was able to resume duty for almost the whole of his period of service. The accident was rare. M. Epaulard has found in medical literature eight similar cases all terminating in recovery.

Physiological and Therapeutical Action of the Resin of Euphorbium.

The resin of euphorbium finely emulsified and injected into the tissues in very minute doses possesses the remarkable property of producing local anæmia (*ischémie de la circulation rouge*). M. Périères has suggested that this action might be used for the checking of hæmorrhage due to uterine fibroids, a condition which often requires surgical treatment. In all the cases of fibroma of the uterus which he has observed he has made use of this resin injected into the cervix, with the result that not only was the hæmorrhage stopped but the fibrous body itself underwent an arrest of development and tended to disappear by continuous regression. M. Périères read a paper on this subject at a meeting of the Academy of Sciences held on Dec. 24th, 1906.

French Colonial Sickness Statistics.

At the meeting of the Academy of Medicine held on Jan. 15th M. Kermorgan gave an account of the various endemic, epidemic, and contagious diseases prevalent throughout the French colonies in 1905. They can be divided into two distinct categories—namely, those diseases common to both the tropics and to our own temperate regions and those which are distinctly tropical. In the first category come whooping-cough, typhoid fever, influenza, cerebro-spinal meningitis, mumps, measles, tuberculosis, small-pox, and chicken-pox. Of all these tuberculosis merits special attention, for it is mentioned in all the colonial reports as spreading more and more amongst the native populations. Among the maladies special to the tropics must first be mentioned beri-beri, which occupies an important place among the diseases of the natives; cholera, which has prevailed in India and in Indo-China; diarrhœa and dysentery, with or without suppurative hepatitis; leprosy; sleeping sickness, which is much more prevalent than is generally supposed in French West Africa; plague, which is prevalent in India, Cochin China, New Caledonia, and the territory of Quang-Tcheou-Wan; and malaria. This last disease is become much less common in Senegal since the promotion of hygienic measures and the undertaking of regular measures of destruction of mosquitoes and their larvæ.

Iodine in the Treatment of Malignant Pustule.

M. Andrès-F-Llobet has for many years insisted upon the excellent results which are obtained by the internal use of iodine in the treatment of malignant pustule. M. Roux read a note on the matter on his behalf before the Academy of Sciences at the meeting held on Jan. 7th. Of 70 cases treated in this way by M. Andrès-F-Llobet, whether in his private clinic or in hospital, since 1891 not one died. Experiments on rabbits, animals very susceptible to anthrax poisoning, have confirmed the curative action of iodine administered by the mouth in this disease. Its value given by injections around the pustular focus is well known but its action as administered by the mouth is less widely recognised.

Jan. 14th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Responsibility of an Epileptic Murderer.

PUBLIC opinion in Germany is at present somewhat excited over what is known as the Tessnow case, in which a man has been twice tried at Greifswald, in Pomerania, on a charge of murder, and each time the verdict of the jury was at variance with the unanimous opinion of medical experts.

The prisoner was a young man, a carpenter, and he had murdered four children on the high road and mutilated the bodies. When the alarm was raised he was found quietly walking along, his clothes and hands bespattered with blood, and he was accordingly arrested. In the prison his behaviour was that of a good-natured person, rather dreamy and quiet, but from time to time he became violent, showed signs of mental confusion and apparently took no notice of his surroundings. He did not seem to realise that he had committed several murders and his memory was a blank as far as the period corresponding to the perpetration of the crime was concerned. At the first trial, which took place about two years ago, the evidence of the medical experts was to the effect that the man's father was an inebriate, that he himself was obviously an epileptic, and that he had committed the crime in a state of epileptic trance. This latter opinion was remarkably confirmed by the prisoner's behaviour after the crime, as he made no attempt to conceal the traces of the murder by washing his hands and clothes. His counsel put in a plea of not guilty because of mental aberration, but the Public Prosecutor insisted that he was responsible for his actions and that the murder was a manifestation of sadism. The jury accepted this view and the man was sentenced to death. On the morning when the execution was to take place he had a typical severe epileptic fit which was followed by complete unconsciousness of long duration. The execution was accordingly postponed and by order of the court the man was placed in a lunatic asylum in order that he might be under observation. A fortnight ago he was brought before another jury; all the medical experts, those who had seen him both in the asylum and in the prison and also the so-called "scientific deputation," which is the highest medical authority in judicial matters, declared once more that the man was an epileptic and that the murder was an unconscious act for which he could not be held criminally responsible. Nevertheless he was again sentenced to death and if the Crown does not exercise its prerogative of mercy he will forfeit his life on the scaffold. The newspapers and medical journals especially blame the second jury for not accepting the well-founded opinions of the medical experts. They call the verdict a legal murder and ask for such an amendment of the law that obviously insane criminals may not be made responsible for their acts. The Tessnow case is not the only one of that kind. When a prisoner is charged with a heinous offence jurymen are seldom inclined to acquit him, even when mental derangement is proved by the medical evidence. They fear that he may escape from the asylum and that when at liberty he may again commit similar crimes. Moreover, they believe themselves to be as well able to form an estimate of a prisoner's mental state as a medical man is. The excitement caused by the Tessnow case will probably act as a warning to other juries against an obstinate disregard of medical opinions.

A Proposed University at Frankfort.

It is reported that in Frankfort there is a well-supported movement which aims at establishing a university in that great and wealthy city. Rich citizens are said to have collected funds for the purpose, but since the creation of universities belongs exclusively to the State and not, as in America, to private initiative the funds will be given to the Government if it approves of the objects of the contributors. It is to be hoped that the project will be carried out, especially in the interests of medical study. Frankfort has for a long time possessed the nucleus of a medical faculty; the old Senckenberg Institute, founded by a wealthy citizen, contains a number of well-furnished chemical, physical, anatomical, and other laboratories; the Royal Institution for Experimental Therapy under the direction of the celebrated *savant* Professor Ehrlich attracts every year a great many graduates from other parts of Germany and from abroad; the hospitals of Frankfort are of the first rank and contain an immense amount of clinical material which has not hitherto been used for teaching purposes. The establishment of a university will therefore be easy, so far as the medical faculty is concerned. It is remarkable that the great commercial cities are inclined to extend their educational institutions by the creation of universities, for a similar tendency exists in Hamburg. These tendencies should be supported by the medical profession, as it is in their interest when the scientific institutions and the hospitals of the great cities are made accessible to students. This is all the more the case, as the clinics of the universities in the small towns often suffer from the want of patients who now find their way in increasing numbers to the great cities for the purpose of obtaining the advice of the celebrated specialists there. No new universities have been founded in Germany for about a century except at Strasburg where the old university existing previously to the French occupation was re-established in 1872.

Death of Dr. Möbius.

Dr. Möbius, who died recently in Leipsic at the age of 53 years, was a well-known specialist for nervous diseases and one of the most energetic opponents of the so-called emancipation of women. In his sensational work entitled "The Physiological Dementia of Women" he endeavoured to prove that the mental capacity of normal women was decidedly inferior to that of men. A great sensation was also caused by his critical analyses—from the psychiatric point of view—of the characters of celebrated poets and philosophers, such as Rousseau, Nietsche, Scheffel, Schopenhauer, and others. He had further published a great number of memoirs on hysteria, electro-therapy, and other subjects, and had promoted a movement for the establishment of sanatoriums for nervous patients of the poorer classes.

Jan. 14th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Alleged Leprosy at Bendigo.

A CHINAMAN at Bendigo was alleged by his countrymen to be suffering from leprosy. A careful investigation was made by the local health officer and by Dr. Robertson, medical inspector of the Board of Public Health. The latter has reported that the condition, although suspicious, was not leprosy and bacteriological examination had failed to discover any bacilli.

Medical and Dental Practitioners' Bills.

The Bill to amend the Medical Practitioners Act of Victoria passed the Legislative Assembly on Dec. 5th, 1906, with some minor amendments—that the power of the Board to refuse registration to any person convicted of an offence which under the law of Victoria would be misdemeanour, should be subject to approval by the Governor in Council; and that medical officers in the army and navy and those who had filled such positions should be registrable. The main provisions of the Bill have been previously outlined; the chief one is the requirement of a five years' course of medical study.—The Bill introduced into the Legislative Assembly of New South Wales by Dr. R. Arthur to provide for reciprocity has made no progress, owing to the opposition of Labour Members. Dr. Arthur said that he was prepared to make some concessions and take the question out of the hands of the Medical Board and place it in those of the Governor in Council. He was willing also to exempt men of high scientific attainments. Dr. Arthur was equally unfortunate with another Bill for amending the Dentists Act, of which he moved the second reading on Nov. 20th, 1906. In doing so he said that the main objects of the Bill were to fix a standard of examination, especially in preliminary education; to give the Dental Board certain powers which the Act was supposed to confer, but did not, in the direction of removing from the Register persons who had made false statements as to their qualifications; and to prevent registered men employing unregistered individuals in branch establishments. The Bill was opposed and no progress had been made when the time for private Members' business expired.

Hospital Affairs.

The annual meeting of the friends and supporters of St. Vincent's Hospital, Melbourne, was held on Dec. 3rd, 1906. His Excellency the Governor of Victoria presided and the town-hall was packed with a most enthusiastic audience. The report of the Government Inspector of Charities stated that the building was the most up-to-date hospital in the State and an object-lesson in hospital construction. The cost per bed was £54 8*s.* 9*d.*, compared with the mean cost of general hospitals of £57 17*s.* 3*d.* The proportion of cost of administration to expenditure on maintenance was 2 per cent. During the year 365 male and 468 female in-patients had been treated. The number

of operations performed was 1279, with a death percentage of 2·11. The Premier, in seconding the report, said that he proposed to set aside £20,000 for the next five years towards extending or improving the accommodation of hospitals, on condition that the public contributed 5*s.* for every 1*s.* given by the Government.—On Nov. 23rd, 1906, a conference was held at the town-hall, Melbourne, between representatives of various hospitals in Victoria and of the Royal Victorian Trained Nurses' Association. The first question discussed was the training of nurses in infectious diseases. It was decided that the council of the Royal Victorian Trained Nurses' Association should determine the practical requirements and hold an examination, but that no extension of the present curriculum should be made, in the case of any hospital which was recognised as able to provide the necessary experience. The next matter considered was how to secure efficiency of training in small hospitals. The Royal Victorian Trained Nurses' Association has undertaken with the Australian Trained Nurses' Association not to recognise training in hospitals with less than 10 daily occupied beds, beginning from January, 1907. The Royal Victorian Trained Nurses' Association also proposed that in the case of hospitals with between 10 and 40 beds the larger hospitals should take a proportion of their probationers for the last year of their curriculum. The representatives of the small country hospitals objected to these proposals. They could not afford to pay fully trained qualified nurses. It was suggested that probationers in such hospitals should be allowed if after three years' course there they spent six months at the Women's Hospital, Melbourne, and three months at the Infectious Diseases Hospital before getting a certificate. The conference decided to leave the matter to the hospitals concerned, the council of the Royal Victorian Trained Nurses' Association agreeing to accept such a solution of the difficulty if arrangements could be made. The question of modifying the training in hospitals of from 10 to 40 beds was also left to the hospitals concerned to evolve a scheme by which the larger could assist the smaller ones.—A Bill to provide for the regulation and inspection of private hospitals was introduced into the Legislative Council of New South Wales on Nov. 22nd, 1906, by Dr. Mackellar. He stated that there were in the metropolitan district 107 and in the country 343 establishments which would come within the scope of the Bill. While some were excellent, many were entirely unfit for the purpose. The Bill provided that private hospitals must be licensed by the Minister, on the recommendation of the Board of Health. A special clause dealt with lying-in homes. Sir Arthur Kenwick, M.D., said that a Bill of this description ought to have been introduced by the Government years ago. The Bill was referred to a Select Committee for report.

Friendly Societies.

The annual report of the Registrar of Friendly Societies for New South Wales for 1905, shows that there were 101,463 members of all the societies, and there were 18,348 persons sick for an aggregate term of 104,289 weeks, with a total cost in sick pay of £83,375. An amount of £87,465 was paid for medical attendance and medicine, or an average cost of 17*s.* 6*d.* per head of mean membership.—A meeting of representatives of the friendly societies in the eastern suburbs of Sydney was held on Nov. 28th, 1906, to discuss a draft agreement for lodge surgeons, drawn up by the New South Wales branch of the British Medical Association. The following motion was carried unanimously:—

> That we, the representatives of the various friendly societies in the eastern suburbs, agree to advise our respective societies that no agreement be entered into with medical officers which contain the following provisions—viz.: (1) To charge a candidate or the lodge for such candidate's examination; (2) making a member receiving £200 per annum ineligible for medical benefits; (3) medicines, &c., to be supplied by medical officers (in lieu of by the chemists as at present).

In the course of the discussion it was seriously proposed that medical institutes should be formed and medical men appointed to them from outside the State.

Inspection of School Children.

The Tasmanian Government has approved of the scheme submitted by the Director of Education for a complete medical examination of all State schools. Local medical men will be appointed at Hobart and Launceston to inspect the scholars and advise teachers, and a woman medical practitioner will be engaged as a permanent member of the education staff to visit all schools where local professional services are not available.—At a recent meeting of the New South Wales Dental Association a paper was read on the result of inspections by dentists of the teeth of school children. 3156 children and 73,708 teeth were examined. Over 16 per cent. of the permanent and 24·47 per cent. of the temporary teeth were carious. 94 per cent. of the children had decayed teeth. The half-bred Chinese children showed by far the best dentures.

Pure Milk-supply.

The members of the Melbourne Medical Association recently visited the country establishments of a company supplying pure milk and were very pleased with the methods adopted. The cows are all inspected by veterinary surgeons and pronounced free from disease. The milking sheds were properly constructed and the milkers were clean, with washed hands. The milk is cooled to 60° F. at the milking sheds and then cooled to 34° at the railway depôt and put into special cooled trucks which keep it at 40° all the way to the town depôt where it is pasteurised and put into sterilised bottles in which it is delivered. The company claims to have overcome most of the difficulties, especially great in the heat of summer, incidental to a pure milk-supply.

Patent Medicines.

It has been stated in the press here that a meeting in London of the leading makers of proprietary and patent medicines passed a resolution declaring that the publication of trade secrets as provided in the Commonwealth Commerce Act would render trade with Australia impossible. Section 16 of the Commerce Act provides that trade secrets need not be described unless in the opinion of the Governor in Council the disclosure is necessary for the protection of health. In an official handbook on the working of the Act issued last May the following explanatory footnote is attached to the section:—

> The object of this section is to prevent the proprietors of trade secrets from losing the benefit of such by their being divulged in the trade description. Where, however, the article, such as a patent medicine, contains anything of a kind which may be injurious if taken without due precaution, such as opium, for example, the regulation may require the fact to be stated on the trade description.

Mineral Springs.

A number of medical men recently visited some mineral springs at Frankston, Victoria, which have been acquired by a company which proposes to erect a sanatorium and medicinal baths. One spring contains iron, brine, and potash and another is a sulphur spring.

Obituary.

Mr. J. A. Sutherland, of Moonee Ponds, a suburb of Melbourne, died on Nov. 18th, 1906, after a brief illness from influenzal pneumonia. He had practised in the district for 18 years and was an exceedingly popular as well as a very capable and up-to-date practitioner. He was born in Wick, Scotland, and qualified at the Royal Colleges of Physicians and Surgeons, Edinburgh. He practised in Australia for 36 years. He has one son in the profession who was on his way back to Australia after a visit to England.

Dec. 10th, 1906.

Obituary.

ROBERT TRAVERS LEWIS, B.A., M.B., B.CH. DUB.

THE death of Dr. Robert Travers Lewis from acute pneumonia following upon a chill caught while watching a football match between the University of Cambridge and the West of Scotland occurred on Dec. 2nd, 1906. The fourth son of the late Mr. J. M. Aylward Lewis, J.P., of Ballinagar, county Galway, Dr. Lewis was born in 1859. He was educated at the Rotunda and at Trinity College, Dublin, where he graduated M.B. in 1885, receiving the degree of B.Ch. in the following year. After practising for a few years in Ireland he went to Willingham, Cambridgeshire, where he soon actively interested himself in the life of that place and rapidly won the esteem of its inhabitants. He held the office of medical officer and public vaccinator of the Willingham district of the Chesterton union and was the only medical man in the immediate vicinity of the village. Till within the last three years he was a member of the parish council and served on the technical education committee. For several years he was president of the public hall, a director of the building society, and was medical officer to the Star Benefit Friendly

Society, the Junior Working Men's Club, and the Hearts of Oak Benefit Society. He also took an active interest in the temperance question, being president of the Undenominational Temperance Society. He was not only an enthusiast in local sports himself but succeeded in engendering his enthusiasm among the people of the village, where hockey, cricket, and lawn tennis received a large share of attention. The deceased has left a widow and family.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the first professional examination of the Conjoint Examining Board just completed the following gentlemen were approved in the subjects indicated:—

Chemistry and Physics.—Percy Lytton Tempest Bennett, London Hospital; Harold James Beresford-Heelas, Technical School, Plymouth; Henry George Barham Blackman, Guy's Hospital; William Houston Boyd, Queen's College, Belfast; Stacey Archer Burn, St. Bartholomew's Hospital; Carol Adolph Caufman, Birkbeck College; Reginald Charles Clifford, Polytechnic Institute; Eric Clarence Cline Guy's Hospital; Herbert Edward Cockcroft, Manchester; Charles Frederick Constant, Guy's Hospital; Leonard Marshall Crockett, Charing Cross Hospital; André Constant Labauve d'Arlat, Guy's Hospital; Henry Harvard Davis, Guy's Hospital; William Everard Sherrard Digby, Guy's Hospital; Paul Dvorko-ltz, St. Bartholomew's Hospital; George James Frank Elphick, St. Mary's Hospital; Montague Albert Farr, Charing Cross Hospital; Claude Emery Freeman, Sheffield University; Andrew Alexander Fyffe, Sheffield University; David Havard, University College, Cardiff; Arthur Stanley Heale, New Zealand University and London Hospital; Cecil Norman Hutt, St. Bartholomew's Hospital; William Sadler Hyde, Guy's Hospital; Griffith Lewis Jones, University College, Cardiff; Donald Aldridge Macpherson, Charing Cross Hospital; Dalton Mallam, London Hospital; Avenel Frederick Cleeve Martyn, St. Mary's Hospital; Owen David Baker Mawson, London Hospital; Henry Locke Paddon, B.A. Oxon., St. Thomas's Hospital; John Lansdowne Perceval, Guy's Hospital; Alfred Spearman Pern, St. Thomas's Hospital; Richard Goodenough Rice, London Hospital; George FitzPatrick Rigden, King's College; Harold Robinson, Victoria University, Manchester; Lawrence Lancaster Satow, St. Bartholomew's Hospital; Thomas Stoney Sharpley, Guy's Hospital; Henry Lionel Hughes Steele, St. Thomas's Hospital; Frederick Tooth, Sydney University; Harry Alfred Turner, Science and Art Institute, Walsall; Frank Wells, St. Mary's Hospital; Arthur Tudor Williams, London Hospital.

Biology.—Charles Vernon Anderson, St. Thomas's Hospital; John Claude Beddard, St. Mary's Hospital; Norman Stuart Carruthers, Guy's Hospital; Cyril James Weston Clayton, St. Mary's Hospital; Charles Frederick Constant, Guy's Hospital; Hugh Gregan Crawford, Guy's Hospital; Henry Harvard Davis, Guy's Hospital; Hubert Daw, Guy's Hospital; John Dotto, St. Bartholomew's Hospital; Christopher Robson Dudgeon, Westminster Hospital; Daniel Charles Evans, University College, Cardiff; John Kenneth Garner, Liverpool University; William George Helsby, South-Western Polytechnic; Hugh Granville Hockridge, St. Bartholomew's Hospital; Gordon Alexander Hodgson, Leeds University; Darrell Robert Norman O'Neale Humphrey-Davy, St. Mary's Hospital; Allan Wellesley Lewis, St. Mary's Hospital; Mark Lindsey, St. Bartholomew's Hospital; Eadbert Ralph Longstaff, St. Bartholomew's Hospital; Edward Hillis Marshall, King's College; John Lansdowne Perceval, Guy's Hospital; John Arnoux Prendergast, Leeds University; Christopher Hugh Leete Rixon, St. Thomas's Hospital; Thomas Stoney Sharpley, Guy's Hospital; George Holmes Smith, L.D.S., Birkbeck College; Frederick Tooth, Sydney University; Charles Eustace Williams, Birkbeck College; and Owen Elias Williams, Guy's Hospital.

The following gentlemen passed the second professional examination held on Jan. 3rd, 4th, 7th, and 8th:—

Anatomy and Physiology.—Guy Oldham Chambers, St. Bartholomew's Hospital; John Joseph Clarke, London Hospital; William Thomas Clarke, Guy's Hospital; Henry Gray Woodhouse Dawson, Sheffield University; Henzell Howard Dunmore, London Hospital; Frederick Dunphy, Westminster Hospital; Edwin Charles East, Birmingham University; Alfred James Graves, Columbia University, New York, and Charing Cross Hospital; Geoffrey Richard Heard, London Hospital; Gilbert Percy Humphry, King's College and St. George's Hospitals; Roger Percival Jones, University College, Cardiff, and University College Hospital; Fritz Kaklenberg, Otago University and Guy's Hospital; James Arthur Richard Lee, Sheffield University; Charles Eric Lowe, Westminster Hospital; Alexander Ernest McKenzie, Victoria University, Manchester; John Charsley Mackwood, London Hospital; John Mitchell Mehaffey, New Zealand and London Hospital; Douglas Ashley Mitchell, Guy's Hospital; Leonard William Mortimer, London Hospital; Humphrey Neame, London Hospital; Richard, Alfred Parsons, St. Mary's Hospital; Richard Biddulph Phillips, University College Hospital; Edward Holmes Rainey, London Hospital; Harold Thwaite, Birmingham University; Francis Christopher Tibbs, London Hospital; George Ernest Vilvandre, London Hospital; John Glegg Watson, London Hospital; Charles FitzGerald Willes, St. Bartholomew's Hospital; Sydney Williams, University College, Cardiff; Charles Stewart Wink, St. Thomas's Hospital; Duncan Wood, London Hospital; and Charles Reynolds Woodruff, St. Bartholomew's Hospital.

At the quarterly examination in Practical Pharmacy of the Conjoint Examining Board the following gentlemen were approved:—

Edward Morison Adam, Charing Cross Hospital; Isaac Barnett Bernstein, Leeds University; Harry Barrett Corry, B.A. Cantab., London Hospital; Gustavus William Musgrave Custance, St. Thomas's Hospital; Benjamin Dale, St. George's Hospital; Thomas Ronald Davey, St. Mary's Hospital and private; Archibald Davidson, Guy's Hospital; Evan Richard Evans, St. Bartholomew's Hospital; Alexander Savill Graham, Charing Cross Hospital; Thomas Arthur Jones, B.A. Cantab., Cambridge University and London Hospital; James Leonard Joyce, Cambridge University and St. Bartholomew's Hospital; Ernest Albert Saunders, King's College Hospital; John Richard Cook Stephens, London Hospital and private; Gilbert Francis Syms, Guy's Hospital; and Gerald Douglas Hamilton Wallace, Charing Cross Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—In the Preliminary Science Examination for the Licence in Dental Surgery the following gentlemen were approved in the subjects of Chemistry and Physics:—

Herbert Ferris Barge, Charles Ernest Blows, Ernest Benjamin Brown, and Henry James Burch, Birkbeck College; Norman Sambell Cardell, Liverpool University; Neville Dutton Clarke, Queen's College, Belfast, and Guy's Hospital; Arthur Josiah Dabbs, Birmingham University; Norman Malcolm McArthur Douglas, Liverpool University; George Vivian Dymott, Birkbeck College; Ernest William Frank Falkner, Municipal School, Grimsby, and Liverpool University; Frank Leonard Furse, Birkbeck College; Henry Hall, Charing Cross Hospital; Harold Holburn, Sheffield University; Arthur Percy Livett Johnson, Birkbeck College; Charles Ernest McNabb, Technical Institute, Salford, and Municipal School, Manchester; Frederick Edward Marston, Wyggeston School, Leicester; Charles Harry Greville Penny, Polytechnic Institute; George Orchard Roper, Royal Albert Memorial College, Exeter; Alfred Edmund Victor Spill, University College, Cardiff; Claud Stacey, Polytechnic Institute; Joseph Magnus Watson, Rutherford College; and George Kerry Wild, Birmingham University.

SOCIETY OF APOTHECARIES OF LONDON.—At the primary examinations held recently the following candidates passed in the subjects indicated:—

PART I.

Biology.—I. M. Bernard, Royal Free Hospital; and H. Cox, Birmingham.
Chemistry.—E. G. Carroll, London Hospital.
Materia Medica and Pharmacy.—R. C. Carey, London Hospital; E. M. Johnstone and G. F. Malden, Royal Free Hospital; and V. P. Norman, London Hospital.

PART II.

Anatomy.—N. B. Benjafield, University College Hospital; M. Bennett, Royal Free Hospital; J. Bramley-Moore, University College Hospital; H. S. Brown, Birmingham; G. G. Rigby, Manchester; and W. H. Watson, Guy's Hospital.
Physiology.—N. B. Benjafield, University College Hospital; M. Bennett, Royal Free Hospital; J. Bramley-Moore, University College Hospital; H. S. Brown, Birmingham; C. S. Foster, Westminster Hospital; M. Graves and V. P. Norman, London Hospital; G. G. Rigby, Manchester; S. H. Scott, London Hospital; and W. H. Watson, Guy's Hospital.

UNIVERSITY OF CAMBRIDGE.—The following having passed the required examinations are entitled to the University Diploma in Tropical Medicine and Hygiene:—

S. L. Cummins, A. Fenton, S. A. Harries, A. E. Horn, H. B. G. Newham, W. G. B. Orme, J. B. Smith, and F. M. Suckling.

A University Lectureship in Hygiene, with an annual stipend of £100, was established by grace of the Senate on Jan. 17th. Dr. D. MacAlister has been appointed a member of the syndicate for the institution of a Diploma in Architecture.

BIRMINGHAM HOUSING COMMITTEE AND THE BORDESLEY-GREEN SCHEME.—The housing committee does much good work and ably seconds the medical officer of the city. During the past five years it has rendered 1157 houses habitable, has closed 913 which were unfit for habitation, and has demolished 519. It has been sympathetic towards all schemes for land purchase and town planning, and in pursuance of the policy of municipal purchase it acquired some time ago a piece of land at Bordesley, the idea being that the land should be let on leases to be utilised for the erection of workmen's dwellings. There has been difficulty in disposing of the land on proper terms, and the committee now proposes to lease it to the Ideal Benefit Society which desires to erect upon it, and on an immediately adjacent piece of ground, dwellings suitable for its members who belong to the better class of artisans. According to the scheme of the housing committee the land is to be leased to the society for 109 years, the usual leasehold time being exceeded in order that the society may grant a full 99 years' lease to any of its members who may purchase at any time in the first ten years of the society's tenure, within which period the land must be fully developed. Under the scheme the city will begin to make a definite and not unreasonable profit at the end of 22 years.

Before the scheme can be carried out the approval of the Local Government Board will have to be obtained and serious opposition is threatened by the committee of the Birmingham Trades' Council, which holds that the land was not intended for the erection of the class of houses now proposed, but for houses adapted to the means of the lower classes of workmen who earn about £1 per week. The matter was argued somewhat hotly at a recent meeting of the trades' council and artisans who could afford houses of the character contemplated under the new scheme were stigmatised as aristocratic.

VITAL STATISTICS IN RUSSIA.—In a statement which has been just issued on public health in Russia in 1904 it is shown that in European Russia the mortality was 29·1 per 1000. Although in comparison with the death-rates in other European countries this is very high, it is very low compared with the average for the preceding 15 years in Russia. The birth-rate for the year was 47·3 per 1000, so that the natural increase of the population was 18·2 per 1000, which is higher than for any of the preceding 15 years. The *Pharmaz Journal* points out that owing to the number of reserves called to the war the number of civilian medical men in practice at the end of the year under review was 16,144, as compared with 17,656 at the end of the preceding year. The total number of patients treated at the hospitals was 2,028,081, of whom 112,194 died (5·5 per cent.). 155,000 cases were treated at the maternity hospitals where the mortality was 0·5 per cent.

INFANTS' HOSPITAL, LONDON.—The Duchess of Albany has agreed to be the first patron of the new Hospital for Infants now in course of erection at Vincent-square, Westminster, S.W. This hospital was established in temporary premises in Hampstead early in 1903 and the great success achieved by the treatment of infants suffering from malnutrition has led a member of the committee to erect the new hospital entirely at his own expense, the work of maintenance being all that the public and friends of the hospital are asked to provide. The new building will contain 50 cots and accommodation for the nursing staff, and the committee earnestly pleads for help. The constitution, by-laws, and regulations of the hospital provide that donors of 50 guineas shall be entitled to all the privileges of life governors, and annual subscribers of 1 guinea shall be governors of the hospital during the continuance of such subscription and as such shall be the authority which annually appoints the committee of management. Detailed information concerning the hospital will be gladly given by the secretary at the temporary office of the Infants' Hospital, 120, Victoria-street, London, S.W., or by the matron at the present hospital at Hampstead.

UNIVERSITY COLLEGE, LONDON.—The annual report of the council of University College has just been issued. The number of students in the college for the session 1905–06 was 1396, of whom 242 belonged to the Faculty of Medicine and 134 were post-graduate and research students. There were 468 internal students of the University of London—that is, students taking full courses for degrees at the University of London. There were besides about 800 persons attending "public" and "special" courses. The fees received in all the faculties of the college amounted to £22,823, being an increase of upwards of £2600 on the previous session. The financial statements show that the income exceeded the expenditure by £126, that the Treasury grant amounted to £10,000, and that the general finances of the college are in a healthy condition. The report contains a summary of the research work done during the past session, the researches in the department of chemistry, including those of Sir William Ramsay in respect of neon and helium, being among the most interesting. The report also summarises the steps that have been taken for the union of the college and the University of London. On Jan. 1st of the present year the college ceased to be a school of the University and became incorporated with it, thus realising the aims of those who in 1826 founded it. It is the first college thus to be incorporated with the university and it is understood that its example will be followed by King's College. Important additions have been made during the past year to the departments of physics and chemistry and a plan has been worked out for the re-arrangement of many of the college departments. This will be possible when the new buildings for the School of Advanced Medical Studies, now in course of erection by the generosity of Sir Donald Currie, and when the new buildings of University College School at Hampstead are completed. The new medical school buildings will be completed during the next few months.

WEST AFRICAN MEDICAL STAFF.—The following appointments have been made to the West African Medical Staff:—H. Catling, M.R.C.S. Eng., L.R.C.P. Lond., Southern Nigeria; F. H. Storey, M.B., Ch.B., Univ. Liverp., H. W. Gush, M.B., Ch.B. Edin., F. I. M. Jupe, L.S.A., and T. H. Dugon, M.R.C.S. Eng., L.R.C.P. Lond., Gold Coast; and A. B. S. Powell, L.R.C.P. & S. Edin., L.F.P.S. Glasg., A. H. Wilson, M.B., Ch.B. Cantab., C. C. Robinson, M.B. Lond., L.R.C.P. Lond., M.R.C.S. Eng., and H. M. Newport, M.R.C.S. Eng., L.R.C.P. Lond., Southern Nigeria. W. R. Henderson, C.M.G., M.D.R.U.I., principal medical officer of the Gold Coast, retires on pension. G. F. Darker, M.R.C.S. Eng., L.R.C.P. Lond., medical officer in Southern Nigeria, and D. Cowin, M.B., B.Ch. Vict. Univ., medical officer in the Gold Coast, resign. H. Kramer, M.B., B.Ch. Edin., medical officer in the Gold Coast, is invalided from the service. W. H. G. H. Best, L.R.C.S. & P. Irel., medical officer in Southern Nigeria, is promoted to be senior medical officer, vice G. J. Rutherford, M.R.C.S. Eng., L.R.C.P. Lond., transferred. E. H. Read, M.R.C.S. Eng., L.R.C.P. Lond., medical officer in Southern Nigeria, is promoted to be senior medical officer, vice F. G. Hopkins, M.D. Dub., promoted.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of this society was held on Jan. 9th, Dr. G. F. Blandford, the President, being in the chair. Fifteen directors were present. The deaths of two members were reported and the resignation of one was accepted. Three new members were elected. The deaths of two widows were also reported; one, whose husband had paid a life subscription fee of £26 5s., had received in grants £1217, and the other £857, her husband having paid £21 in subscriptions. £536 had been distributed as a Christmas present amongst the annuitants of the charity. The sum of £1275 10s was voted for the half-yearly grants to the 48 widows and 21 orphans at present in receipt of grants. During the past quarter six letters had been received from widows of medical men asking for relief, but this had to be refused as their husbands had not been members of the society. An application for relief was received from the widow of a member and a grant at the rate of £40 per annum was made. Membership of the society is open to any registered practitioner residing within a radius of 20 miles from Charing Cross. Full particulars may be obtained from the secretary at 11, Chandos-street, Cavendish-square, London, W.

OPENING OF THE NEW LIVERPOOL INFIRMARY FOR CHILDREN.—Her Royal Highness the Duchess of Albany formally opened the new Infirmary for Children on Jan. 10th. The Lord Mayor of Liverpool presided at the ceremony, which was largely attended and included the Earl of Derby, the Lord Bishop of Liverpool, Lady Isobel Gathorne Hardy, and the Lady Mayoress. The rebuilt infirmary was founded in 1851 by the late Dr. Alfred Stephens of 4, Upper Parliament-street, Liverpool, who was the senior physician to the infirmary for upwards of a quarter of a century. He conceived the idea as the result of a visit to the old children's dispensary in Dublin. The infirmary had its beginning in a small house in Upper Hill-street, the work being then confined to out-patients. In 1856 larger premises were obtained and provision was made for a few in-patients. In 1866 the late Duke of Edinburgh laid the foundation-stone of the building which unfortunately (on the advice of sanitary experts) had to be demolished owing to the frequent outbreaks of diphtheria and scarlet fever. The demolished infirmary provided accommodation for 80 in-patients; the new building will accommodate 100 in-patients, exclusive of six cots in the observation block. The old building also proved inadequate for the treatment of the out-patients and necessitated the building of an out-patient department separate from the main building, which was opened by the Countess of Derby in 1902, a description of which was given in THE LANCET. In 1903 the infirmary was pulled down owing to the frequent outbreaks of infectious disease mentioned above. The total cost of the buildings, including the purchase of land, was £68,000. The infirmary has been built and equipped with all the most recent improvements and is a very imposing building.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Aids to Medical Diagnosis. By Arthur Whiting, M.D., M.R.C.P., Physician to the Tottenham Hospital and Assistant Physician to the Mount Vernon Hospital for Consumption and Diseases of the Chest. Price, paper, 2s.; cloth, 2s. 6d.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, and Melbourne.

Tumours, Innocent and Malignant: their Clinical Characters and Appropriate Treatment. By J. Bland-Sutton, F.R.C.S., Surgeon to, and Member of, the Cancer Investigation Committee of the Middlesex Hospital, &c. Fourth edition. Price 21s.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

A Handbook of Physics and Chemistry. Adapted to the Requirements of the First Examination of the Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons and also for General Use. By Herbert E. Corbin, B.Sc. Lond., M.R.C.S., L.R.C.P., D.P.H., Medical Superintendent, London Fever Hospital, and Archibald M. Stewart, B.Sc. Lond., B.A., T.C.D., Headmaster of Alresford Grammar School. Third edition. Price 6s. 6d. net.

F. A. DAVIS COMPANY, 1914-16, Cherry-street, Philadelphia, Pa., U.S.A.

A Practical Treatise on Materia Medica and Therapeutics. With Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia. Sixth edition, thoroughly revised. Price 25 net.

GRIFFIN, CHARLES, AND COMPANY, LIMITED, Exeter-street, Strand, London, W.C.

Poisons: their Effects and Detection. By Alexander Wynter Blyth, M.R.C.S., F.I.C., F.C.S., &c., Barrister-at-Law; Public Analyst for the County of Devon; Medical Officer of Health and Public Analyst for the Borough of St. Marylebone; and Meredith Wynter Blyth, B.A. Cantab., B.Sc. Lond., F.I.C., F.C.S., &c., Public Analyst for the Borough of Brighton, and also for the Borough of Eastbourne. Fourth edition, thoroughly revised, enlarged, and rewritten. Price 21s. net.

Practical Sanitation: A Handbook for Sanitary Inspectors and others interested in Sanitation. By George Reid, M.D., D.P.H., Fellow and Examiner of the Sanitary Institute, Medical Officer of Health, Staffordshire County Council. With an Appendix on Sanitary Law by Herbert Manley, M.A. Cantab., M.B., D.P.H., Fellow of Sanitary Institute, Barrister-at-Law, Medical Officer of Health, County Borough of West Bromwich. Thirteenth edition, thoroughly revised. Price 6s.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, U.S.A. Volume II. and Volume III. Sixteenth Series, 1906. Price not stated.

Post-mortem Pathology. A Manual of the Technic of Post-mortem Examinations and the Interpretations to be drawn therefrom. By Henry W. Cattell, A.M., M.D., President of the Philadelphia Medical Jurisprudence Society, 1905-06. Third edition. Price 18s. net.

MACMILLAN AND CO., LIMITED, London.

A Health Reader. By C. E. Shelly, M.A., M.D., M.R.C.P., Consulting Medical Officer, Halleybury College, and E. Stenhouse, B.Sc., Associate of the Royal College of Science. Book I. Price 1s.

Anæsthetics and their Administration. A Text-book for Medical and Dental Practitioners and Students. By Frederic W. Hewitt, M.V.O., M.A., M.D. Cantab., Anæsthetist to His Majesty the King, Physician-Anæsthetist to St. George's Hospital, Consulting Anæsthetist and Emeritus Lecturer on Anæsthetics at the London Hospital. Third edition. Price 15s. net.

MILLER, T. MASKEW, Cape Town, Pretoria, and Bulawayo.

The Treatment of Uterine Retro-deviations. By G. A. Casalis, M.B., C.M. Ed., Gynæcological Surgeon to the Victoria Cottage Hospital, Wynberg. Price not stated.

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, INDIA, Calcutta.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 25. On the Importance of Larval Characters in the Classification of Mosquitoes. By Captain S. R. Christophers, M.B., I.M.S. Price 8 annas, or 9d. No. 26. Leucocytozoon Canis. By Captain S. R. Christophers, M.B., I.M.S. Price 12 annas, or 1s. 2d.

PENTLAND, YOUNG J., Edinburgh and London.

The Edinburgh Medical Journal. Edited by Alexis Thomson, M.D., F.R.C.S. Ed., and Harvey Littlejohn, M.B., F.R.C.S. Ed. New series. Vol. XX. Price not stated.

THE YEAR BOOK PUBLISHERS, 40, Dearborn-street, Chicago. (G. GILLIES AND CO., 28, Gibson-street, Hillhead, Glasgow.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of Gustavus P. Head, M.D., Chicago. Volume VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology, and Forensic Medicine. Edited by George F. Butler, Ph.G., M.D., Henry R. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Daniel R. Brower, A.M., M.D., LL.D., and Harold N. Moyer, M.D. Series 1906. Price 5s.

Volume IX. Anatomy, Physiology, Pathology, and Dictionary. Edited by W. A. Evans, M.S., M.D., Adolph Gehrmann, M.D., William Healy, A.B., M.D. Series 1906. Price 5s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ARGYLE, S. S., M.B., Ch.M. Melb., M.R.C.S., has been appointed Honorary X Ray Specialist to the Sanatorium, Mount Magnet (Macedon), Victoria, Australia.

CROSSLEY, LEONARD, M.D. Edin., has been appointed Medical Superintendent of the Sanatorium at the Benenden Branch of the National Association for the Establishment and Maintenance of Sanatoria for Workers suffering from Tuberculosis.

DAVIS, WILLIAM HERBERT, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Assistant Ophthalmic Surgeon to the Royal Albert Hospital, Devonport.

DEANE, JOHN EDWARD JAMES, L.K.Q.C.P. Irel., has been appointed a Public Vaccinator for the Northern District of Victoria, Australia.

DRAPES, THOMAS LAMBERT, M.B., B.C. Cantab., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer and Workhouse Medical Officer by the Chepstow (Mon.) Board of Guardians.

FLETCHER, R. B., M.D., Ch.B. Vict., has been appointed District Obstetric Officer to the St. Mary's Hospitals, Manchester.

FOX, ROBERT ALGERNON, M.B., B.S. Edin., has been appointed Medical Superintendent of the Rookwood Asylum, Sydney, New South Wales.

HAY, JOHN, M.D. Vict., M.R.C.P. Lond., has been appointed Assistant Physician to the Royal Infirmary, Liverpool.

HYATT, ANNIE WAINWRIGHT, M.B., B.S. Lond., has been appointed Deputy Medical Officer of Health to the Shepton Mallet Urban District Council.

MARWICK, R. ELRICK, M.B., Ch.B. Edin., has been appointed Senior House Surgeon to the Dumfries and Galloway Royal Infirmary.

MCNAUGHTON, J. G., M.D., M.R.C.P. Edin., has been appointed Honorary Physician to Ancoats Hospital, Manchester.

NUNNELEY, F. P., M.B., B.S. Oxon., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Elstree District of the county of Hertford.

PHILLIPS, MILES H., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Honorary Assistant Medical Officer to the Jessop Hospital for Women, Sheffield.

SPEIRS, HENRY, M.B., Ch.B. Edin., has been appointed House Surgeon at the Chelsea Hospital for Women.

VIOLETTE, W. B., M.B., Ch.M. Glasg., has been appointed Visiting Medical Officer to the Newington Asylum, New South Wales.

WESTERMAN, ARTHUR, M.D., Ch.B. Aberd., has been appointed Clinical Assistant to the Throat and Ear Department at the Brompton Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £80 per annum, with board, washing, and lodging.

BATH ROYAL UNITED HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and washing.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Physician.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician. Salary at rate of £50 per annum, with board, lodging, and washing.

BRIGHTON AND HOVE LYING-IN INSTITUTION AND HOSPITAL FOR WOMEN.—House Surgeon, unmarried. Salary £30 per annum, with apartments, board, and attendance.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—House Surgeon. Salary £160, with rooms and attendance.

BRISTOL DISPENSARY.—Medical Officer.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Assistant House Surgeon. Salary £50 per annum, with board, rooms, and attendance.

BRISTOL ROYAL INFIRMARY.—Resident Junior House Surgeon. Also Resident Casualty Officer. Both for six months. Salaries at rate of £50 per annum, with board, lodging, and washing. Also Resident Obstetric Officer. Salary £75 per annum, with board, lodging, and washing.

CARMARTHEN, CARDIGAN, AND PEMBROKE JOINT COUNTIES LUNATIC ASYLUM, Carmarthen.—Junior Assistant Medical Officer. Salary £150, with rooms, board, washing, and attendance.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Registrar for In patients. Honorarium 20 guineas per annum.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Registrar. Honorarium £40 per annum.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.

FARRINGDON GENERAL DISPENSARY, Bartlett's Buildings, Holborn, E.C.—Honorary Physician.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board, residence, and washing.

GREAT INDIAN PENINSULA RAILWAY COMPANY.—District Surgeon. Salary Rs.450 per mensem, rising Rs.800 per mensem.

GUY'S HOSPITAL.—Assistant to the Lecturer in Bacteriology. Honorarium £50 per annum.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer for eight months. Salary at rate of £80 per annum, with board and residence.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Honorarium £20, with residence, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, also Assistant Casualty Medical Officer, both unmarried. Salary in each case 25 guineas for eight months, with board and residence.

HUDDERSFIELD, COUNTY BOROUGH OF.—Two Lady Assistant Medical Officers of Health. Salary 100 guineas per annum.

HULL ROYAL INFIRMARY.—Casualty House Surgeon. Salary £50, with board, and lodging.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—Resident Clinical Assistant.

LONDON LOCK HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging and washing.

MENSTON, NEAR LEEDS, WEST RIDING ASYLUM.—Second Assistant Medical Officer. Salary £200, rising to £250, with board and apartments. Also Fourth Assistant Medical Officer. Salary £150, rising to £180, with board and apartments.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Fitzroy-square, W.—Two Clinical Assistants.

NEW HOSPITAL FOR WOMEN, Euston-road.—Physician to the Out-patient Department; also Senior Assistants and Two Clinical Assistants (all females) for one year.

NEWPORT BOROUGH ASYLUM, Caerleon (Mon.).—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and attendance.

NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Honorarium £20, with board, lodging, and washing.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road.—Physician for Diseases of Women. Also Dental Surgeon.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £40 per annum, with board, &c.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House Surgeon for six months, renewable. Salary £50, with board, residence, and washing.

REETH UNION, Yorkshire.—Medical Officer.

ROCHDALE INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and laundry.

ROYAL PIMLICO DISPENSARY, 104, Buckingham Palace-road, S.W.—Visiting Medical Officer.

ROYAL SOUTH LONDON DISPENSARY.—Surgeon-in-Ordinary.

ST. MARY'S HOSPITAL, Paddington, W.—Casualty Physician. Salary £75 per annum.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Honorary Gynæcologist.

ST. PANCRAS AND NORTHERN DISPENSARY, 126, Euston-road.—Honorary Physician.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SHEFFIELD, EAST-END BRANCH OF THE CHILDREN'S HOSPITAL.—House Surgeon. Salary £70 per annum, with board, lodging, and washing.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—House Surgeon, unmarried. Salary £60 per annum, with board and residence.

SHEFFIELD, UNIVERSITY OF SHEFFIELD.—Chair of Pathology.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon for six months. Honorarium £31, with board, residence, and laundry.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, together with board, apartments, and attendance.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Assistant Resident Medical Officers, unmarried. Salary £80, with board and lodging.

WAKEFIELD, WEST RIDING ASYLUM.—Clinical Assistant or Junior Assistant Medical Officer.

WEST HARTLEPOOL, CAMERON HOSPITAL.—House Surgeon. Salary £100 per annum, with board, rooms, and washing.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £70 per annum, with rooms, board, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Sturminster Newton, in the county of Dorset.

Births, Marriages, and Deaths.

BIRTHS.

DEANESLY.—On Jan. 6th, at Waterloo-road, Wolverhampton, the wife of Edward Deanesly, M.D., F.R.C.S., of a daughter.

GILFORD.—On Jan. 2nd, at Oxford-road, Reading, the wife of Sidney Gilford, M.B., Ch.B., of a daughter.

HEPBURN.—On Jan. 11th, at Pevensey, Enfield, the wife of Malcolm L. Hepburn, M.D., F.R.C.S., of a daughter.

MARRIAGE.

ANDREWS—FRANCIS.—On Jan. 5th, at St Mary Abbotts, Kensington, Cecil Edward Andrews, M.R.C.S., L.R.C.P., to Zenobia, youngest daughter of the late Major T. J. Francis, 9th and 16th Lancers.

DEATH.

TAYLER.—On Jan. 5th, at Hardicot, Kingsdown, Dover, William Henry Tayler, M.D., aged 76 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A FRIEND'S ADVICE.

AT a recent inquest held at Scarborough evidence was given that the deceased suffered from quinsy and consulted a friend who was ill-advised enough to recommend him a course which, strange to say, he adopted. The prescription consisted in taking half an ounce of ordinary chlorate of potassium lozenges dissolved in water in the morning and a similar dose at night. Whether these measures were to be continued indefinitely was not stated, for on the day following the consumption of the quantity mentioned, equal to 450 grains of chlorate of potassium, the patient died. It might be interesting to know by what process the friend who gave the advice arrived at his singular "remedy" and who first suggested that lozenges which are of more or less popular consumption should be misused in such a manner. It is to be hoped that anyone who has heard of this new domestic "cure for quinsy" and is waiting for an opportunity to try it will read of the inquest mentioned and be warned in time.

NOVOCAINE.

To the Editors of THE LANCET.

SIRS,—I should be much obliged if any of your readers would inform me as to the following points in cases of dental extractions. 1. Is novocaine at all superior to eucaine? 2. What amounts of each respectively is it safe to inject in cases requiring many teeth removed? 3. The technique of injecting these fluids so as to insure the greatest amount of anæsthesia possible, I mean as regards insertion of needle, &c. I inclose my card, and remain, Sirs, yours faithfully,

Jan. 14th, 1907. DENTAL.

THE MISLEADING ADVERTISEMENT.

IN the issue of Jan. 12th of our contemporary *John Bull* we find on p. 45 in the "Answers to Correspondents" the following excellent advice: "Avoid the Magic Foot Draught Company and all other quacks." On p. 41, however, we see a flaming advertisement of the British Electric Institute which sells the Ajax Dry Cell batteries. This advertisement, as is usual with electrical quacks, quotes opinions by medical men upon the uses of electricity and, moreover, gives a quotation from the writing of the late Dr. W. E. Stevenson (he has been dead some 15 years) in our columns. From the advertisement it might be inferred that Dr. Stevenson advocates the Ajax Dry Cell in our columns and that we ourselves approve of it too. What we really think about the Ajax Dry Cell may be seen in our issue of June 9th, 1906, p. 1653. But anyway, we think that the editor of *John Bull* should make his counsel as to avoidance of quacks fit his practice by excluding their advertisements.

THE TREATMENT OF "NEURALGIA."

To the Editors of THE LANCET.

SIRS,—Replying to "G.'s" inquiry in your issue of Jan. 5th, I would suggest a careful search for "pressure" on the posterior spinal roots of the brachial plexus. The "not very marked tenderness" there is suggestive, and I have seen a case with similar symptoms at once cured by the removal of a small sebaceous cyst. If nothing can be found I would suggest the application of that most excellent weapon, Corrigan's button. I am, Sirs, yours faithfully,

Southport, Jan. 14th, 1907. COLIN CAMPBELL.

DIET IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—Can any of your readers kindly inform me where I can find statistics showing the relative value of the old liquid and the new (more) solid dietaries in typhoid fever?

I am, Sirs, yours faithfully,

Jan. 11th, 1907. GARGANTUA.

MANCHESTER CREMATORIUM.

THE annual meeting of the shareholders of the Manchester Crematorium held on Dec. 28th, 1906, was the seventeenth of the series. The report of the directors seems to show an undercurrent of disappointment with the comparatively slow progress made by cremation in this district. Indeed, it is said to be "unpopular in the North." The report does not rest the claims of cremation for support solely on the hygienic or sanitary aspects of the matter but appeals also to the love of cheapness which is believed to be a very general characteristic of our times. It is stated that the dead can be cremated for much less than they can be buried, if there is taken into consideration "the subsequent expense after interment in the erection of a memorial to the deceased, as against the moderate cost of a niche for the reception of the urn containing the ashes of the deceased." There are, of course, many arguments in favour of cremation but it may rather jar on some minds when the grimly commercial view of the question is put prominently forward.

WELLCOME'S PHOTOGRAPHIC EXPOSURE RECORD AND DIARY.

WE have received from Messrs. Burroughs, Wellcome and Co. their photographic diary for 1907. It contains some useful information concerning the practical details of photographic manipulation. The directions given, combined with the simplicity and convenience of the mechanical calculator and tables of light values, should render the estimation of correct exposure a simple matter. The articles on machine development, and on tank or stand development fully describe the manipulations connected with these methods. Each book is accompanied with a folding card showing the timing of development by the factorial method for various degrees of contrast. The book will be found a distinct aid to all interested in practical photography.

PHARMACOLOGY.

WE have received from Messrs. Southall Brothers and Barclay of Birmingham a copy of their fifteenth annual laboratory report which contains many interesting observations on pharmacological progress. This report shows amongst other things that a considerable amount of work has been done in regard to the chemical and physiological standardisation of strophanthus, from which it appears that the different varieties of strophanthus contain glucosides essentially different not only in their toxic effect but different also in chemical constitution.

Honestas.—The story is not an edifying one. A seems to us to have lost his practice to B in fair competition, but anyone purchasing B's practice would have to remember that B paid nothing for it, so that the title was insecure. With regard to "C" using confidential information obtained from B's wife we do not see that this is proved, nor even that it was necessary for C to obtain confidential information at all to enable him to understand the situation. C's old relations with A make it probable that they acted in unison from the beginning. While we sympathise with D we do not see that anything has been done of which the General Medical Council, the only tribunal which the medical profession possesses, could take notice. The Council, however, might have a different opinion if the facts were submitted to it.

Interested.—We deplore such paragraphs but in our experience the belauded medical man is not as a rule the offender. The injudicious friend sometimes acting as a correspondent to, and sometimes actually connected with, a newspaper is almost always the author of such paragraphs. Can our correspondent prove that the medical man in question wrote or inspired the paragraph himself?

Mr. R. K. Contractor.—If our correspondent is correct in his facts his best course is to bring the subject to the notice of the Indian Government authorities in Bombay. It would probably be necessary to prove that the person in question had really made use, or was at the time making use, of the title of Doctor of Medicine by virtue of an authority of the degree mentioned by our correspondent.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.) Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), King's College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (23rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.) National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.) Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.) Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (24th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.).

SATURDAY (26th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (22nd).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M.: Papers:—Dr. H. C. Bastian: On the De-novo Origin of Bacteria, Bacilli, Vibriones, Micrococci, Torulæ and Moulds in certain previously Superheated Saline Solutions contained within Hermetically Sealed Tubes.—Dr. S. West and Dr. T. W. Clarke: Idiopathic Cyanosis due to Sulph-hæmoglobinæmia, (Epidiascope demonstration.)

THERAPEUTICAL SOCIETY (Apothecaries' Hall, Blackfriars, E.C.).—4.30 P.M.: Papers:—Dr. R. B. Wild: The Proper Scope of the Teaching of Materia Medica, Pharmacology, and Therapeutics in the Medical Curriculum.—Dr. Bonnefin: On a New Method of rendering Creosote and Cannabis Indica Soluble, and Short Notes on certain Useful but Little Known Drugs.

WEDNESDAY (23rd).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Hunterian Lecture:—Mr. M. Robson: Points in the Diagnosis and Treatment of Duodenal Ulcer.

FRIDAY (25th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M.: Clinical Evening for the Exhibition of Cases followed by Discussion. Patients in attendance from 8 to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (21st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. W. Fox: Clinique. (Skin.) 5.15 P.M.: Lecture:—Dr. G. E. Herman: Some Points in Connexion with Dysmenorrhœa.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—12 noon: Pathological Demonstration:—Dr. G. C. Low. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M.: Lecture:—Mr. Baldwin: Practical Surgery.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Cliniques: Medical Out patient (Dr. Whipham); Throat, Nose, and Ear (Mr. Carson); X Ray Demonstration (Dr. Pirie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Sir D. Duckworth: Medicine. 3.15 P.M.: Mr. W. Turner: Surgery. 4 P.M.: Dr. St Clair Thomson: Diseases of the Throat, Nose, and Ear. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat. Special Lecture:—Sir. D. Duckworth: Cirrhosis of the Liver.

TUESDAY (22nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. Taylor: Clinique. (Medical.) 5.15 P.M.: Lecture:—Dr. R. Jones: The Insane Temperament.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcology. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Clinical Lecture:—Mr. Armour.

NORTH-EAST LONDON POST GRADUATE COLLEGE (Tottenham Hospital, N.).—10.30 A.M.: Clinique:—Medical Out-patient (Dr. Auld). 2.30 P.M.: Surgical Operations (Mr. Carson); Cliniques: Gynæcological Out-patient (Dr. Giles), Surgical Out-patient (Mr. Edmunds). 4.30 P.M.: Lecture:—Dr. Whipham: Empyema in Children.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. T. Hewlett: Medicine. 3.15 P.M.: Mr. Cariess: Surgery. 4 P.M.: Mr. M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Mr. Sargent: Surgery of the Brachial Plexus.

CHARING CROSS HOSPITAL.—4 P.M.: Demonstration:—Dr. MacLeod: (Dermatological). (Post-Graduate Course.)

WEDNESDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. A. H. Tubby: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Dr. A. E. Giles: Developments and Disasters of Extra-Uterine Gestation.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Dr. Robinson: Diseases of Women. 5 P.M.: Lecture:—Dr. Beddard: Practical Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Cliniques:—Dermatological (Dr. Meachen), Ophthalmological (Mr. Brooks), Medical Out-patient (Dr. Whipham).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. F. Taylor: Medicine. 3.30 P.M.: Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M.: Demonstration:—Dr. Abercrombie: Nose and Accessory Sinuses.

THURSDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Mr. L. Mummery: The Special Features of Appendicitis in Children.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M.: Clinical Lecture:—Dr. Davis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Gynæcological Operations (Dr. Giles). Cliniques:—Medical (Dr. Whiting), Surgical Out-patient (Mr. Carson). 3 P.M.: Clinique:—Medical In-patient (Dr. Chappel). 4.30 P.M.: Lecture:—Dr. Meachen: Demonstration of Selected Skin Cases.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. G. Rankin: Medicine. 3.15 P.M.: Sir W. Bennett: Surgery. 4 P.M.: Dr. H. Cooper: Radiography. Out patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat. Special Lecture:—Sir W. Bennett: Concerning Pain in the Groin.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M.: Chesterfield Lecture:—Dr. M. Dockrell: Syphilis: Papular (I., Miliary; II., Lenticular: III., Squamous; IV., Moist, Pustular and Tuberculous).

CHARING CROSS HOSPITAL.—4 P.M.: Dr. Routh: Demonstration (Gynæcological). (Post-Graduate Course.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M.: Lecture:—Dr. Hutchison: Infant Feeding.

FRIDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. S. Stephenson: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcology. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Mr. Lloyd: Anæsthetics.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. Edmunds). Cliniques:—Medical Out-patient (Dr. Auld), Ophthalmological (Mr. Brooks). 3 P.M.: Clinique:—Medical In-patient (Dr. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. Bradford: Medicine. 3.15 P.M.: Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Sir V. Horsley: Surgery of the Nervous System.

SATURDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Dr. Robinson: Diseases of Women.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich.)—2.30 P.M.: Operations. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

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THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1906, which was completed with the issue of Dec. 29th, were given in THE LANCET of Jan. 5th, 1907.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan 17th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia. in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 11	30·536	N.W.	0·19	65	46	41	40	41	Fine
,, 12	30·586	W.	...	59	48	38	39	41	Overcast
,, 13	30·530	W.	...	65	50	41	46	48	Cloudy
,, 14	30·420	W.	...	50	49	47	44	47	Overcast
,, 15	30·510	W.	...	53	48	46	43	46	Overcast
,, 16	30·570	W.	...	51	49	46	44	47	Overcast
,, 17	30·686	S.	...	47	46	45	43	46	Overcast

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